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DISPATCH OF THE "RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and machinery for such dispatch, and any reader desirous of arranging for copies to be delivered to an agent or correspondent overseas should place the order with us together with the necessary delivery instructions.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas, as they are stopped under the provisions of Statutory Rules & Orders No. 1190 *of* 1940, *and No.* 359 *of* 1941

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:—
Mondays to Fridays - 9.30 *a.m. till* 5.0 *p.m.*
The office will be closed on Saturdays

The Unwritten War Aim

MR. DOUGLAS JAY, giving the weekly war commentary after the 9 o'clock news bulletin on Thursday of last week, elaborated the importance of intensifying production to the utmost in order that we may match the Germans in arms and equipment. In doing so he mentioned what is in, or in the background of, the minds of millions of persons. It is a compound of fear and hope, fear of an unprecedented slump, with unemployment and destitution, when hostilities are over and the war market dries up, and hope that when there is no more need for supplying the markets of destruction, the great industries which are feeding them now may be switched over to produce the needs of peace and the amenities of life, and that the sacrifices of the present may therefore receive the recompense of an unprecedented bounty in the future. An earnest of this intention—which is the logical outcome of the industrial effort—may be detected in the tax bonus scheme of Sir Kingsley Wood's recent Budget. That may not by itself provide enough purchasing power to enable the people to absorb the plentiful production of a new peacetime, but it points the way. As this bright, if distant, vision becomes more apparent, an automatic acceleration of the war effort will be born of the desire to attain it.

* * * *

The Ministry of War Transport

An Order-in-Council was made on May 9 giving legal effect to the amalgamation of the Ministry of Shipping and the Ministry of Transport which was foreshadowed by the appointment to both these offices of Mr. Frederick James Leathers. The new Ministry has been given the title of the Ministry of War Transport, a slight modification on the name Ministry of Wartime Communications which was used in the original announcement from 10, Downing Street. By the Order-in-Council all the present functions of both the Ministry of Shipping and the Ministry of Transport are transferred for the present to the new Ministry, and the question as to whether any of them should ultimately be transferred elsewhere is under consideration. It will be recalled that such a severance was foreshadowed in the original announcement of the appointment of Mr. Leathers to the dual office, when it was stated that the details of the process of amalgamation of the two Ministries for the purpose of the war would be worked out as speedily as possible in consultation with the new Minister, and that certain functions of the Ministry of Transport which are connected only remotely with communications would be transferred to the Board of Trade or other departments if found desirable.

* * * *

C.P.R. Diamond Jubilee Meeting

The annual meeting of the shareholders of the Canadian Pacific Railway Company, held in Windsor station, Montreal, on May 7, was the 60th of its series. On February 16, 1881, the Marquis of Lorne, then Governor-General of Canada, signed the Charter of the Canadian Pacific Railway Company and thus established a national undertaking designed to fulfil the terms under which British Columbia joined the Confederation. To quote the words used the other day by Sir Edward Beatty, the present Chairman & President of the company, this great transcontinental railway was carried successfully to completion through the courage, energy, and wisdom of those men who foresaw the future of Canada linked with the enterprise. From its inception the C.P.R. has played a vital part in the growth of the Dominion of Canada and in the welfare of the British Empire and that this is generally realised was demonstrated by the flood of congratulatory messages and expressions of goodwill received on the occasion of the Diamond Jubilee of the company. The operations for the year 1940 resulted in net income of $20,145,056, after payment of all rental and interest charges. This was the most favourable showing since 1930, in which year, however, with slightly less traffic, net income amounted to $38,381,717. These figures give a clear indication of the changed conditions confronting the undertaking. At no time in the past has the quality of service offered been higher and the net income for an equal volume of business so low.

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The economic life of the nation has been stimulated by the great expenditure of the Government for war purposes to such a degree that unemployment has practically vanished and the volume of railway transport has reached the highest level in more than a decade. It has been estimated that, in the current fiscal year, Canadian Government expenditure will be equivalent to more than half of the total national income.

* * * *

Overseas Railway Traffics

Floods affected the traffics of the Argentine North Eastern and the Entre Rios Railways in the 44th week of the financial year, causing falls of 82,500 pesos in the one case and of 59,600 pesos in the other. A satisfactory increase of 302,000 pesos is shown in the receipts of the Buenos Ayres Western for the 44th week, which brings its gain for the 43rd and 44th weeks to 398,000 pesos. On the Central Argentine the advance in the two weeks has been 755,700 pesos, on the Buenos Ayres & Pacific it has been 286,000 pesos, and on the Buenos Ayres Great Southern 157,000 pesos. Central Uruguay traffics register an improvement to date of £56,408 in sterling and the decrease in currency has been reduced to $23,496. The Leopoldina advance to date is £36,900.

	No. of Weeks	Weekly Traffics	Inc. or Decrease	Aggregate Traffic	Increase or Decrease
Buenos Ayres & Pacific* ...	44th	1,585	+ 160	62,780	+ 1,071
Buenos Ayres Great Southern*	44th	2,253	+ 66	97,409	— 7,450
Buenos Ayres Western* ...	44th	985	+ 302	34,081	— 957
Central Argentine*	44th	2,061	+ 458	70,795	— 7,191
		£	£	£	£
Canadian Pacific	18th	1,117,600	+ 323,600	12,413,600	+2,877,400
Bombay, Baroda & Central India	4th	310,875	+ 12,375	976,200	+ 80,850

* Traffic returns in thousands of pesos.

Aggregate gross earnings of the Canadian Pacific Railway for the first quarter of 1941 amounted to £9,082,600, an increase of £1,955,000, and the £1,704,000 net earnings showed an improvement of £643,600.

* * * *

Free Help in the Blitz

When vehicle-owners in Scotland recently lent their transport for emergency evacuation of Clydeside areas liable to *Blitz*, they failed to present bills to the authorities who had appealed for their help. Mr. A. Henderson, Traffic Commissioner for Scotland, has referred to this, saying that he had had to instruct his officers to ask for the accounts to be rendered. He also mentioned that the Scottish Motor Traction Co. Ltd. and W. Alexander & Sons Ltd. (both associates of the L.M.S.R. and the L.N.E.R.) charged no fares to workers or evacuees during a period immediately after severe raids. We have heard expressions of surprise that Scotsmen should in any circumstances fail to present their bills for services rendered; but this indicates a lack of understanding of a well-defined Scottish characteristic. The Scots as buyers always like to have good value for their money, and as sellers expect just payment for that value; but this is on the assumption of ability to pay for articles or services selected. Where such an assumption cannot be made, generosity is as much an outstanding characteristic as it is of the English, and it was in the natural course of events that when transport was provided for the unfortunate victims of the *Blitz*, who would not normally require, or perhaps be in a position to pay for such transport, it would not occur to those who could supply the want to make any charge. Indeed, if they gave the matter a second thought, they would probably feel privileged to be able to render the service.

* * * *

London Postal Services

In a letter published in *The Times* of May 2 the Public Relations Officer of the General Post Office explained the existing postal arrangements in the London area. The six or more collections in the London postal sub-district areas have several purposes, among which are the spreading of traffic to reduce the evening peak load in connection with the numerous mails to the provinces which have to be despatched throughout the day, and also with the collection and the deliveries of the London area and its immediate surroundings. Two collections would be inadequate since they would concentrate the handling of mails in the evening and thus accentuate the evening mail peak and increase the call on labour. In effect the collections fall into two main ranges for the principal mails to the provinces—one at 12 noon to 1 p.m. for mails leaving by afternoon trains, and the other at 5.30 to 6.30 p.m. for mails leaving by evening and night trains. Under present conditions the former are likely to get through, without much hindrance, for first delivery next morning in England and Wales, but the latter may connect with nothing earlier than the afternoon delivery next day in town areas and the morning delivery on the second day in country areas. From the railway point of view it is obviously desirable at present, when labour difficulties add to the problems of handling, that the flow of mails should be maintained as steadily as possible throughout the day. It is clear from the letter published in *The Times* that the Post Office authorities have this consideration in mind.

* * * *

Strategic Railway Development in Spain

A considerable amount of work has been carried out recently on the Algeciras Railway, particularly between Algeciras and Jimena. The line has been reconditioned and its capacity increased by the provision of additional passing loops and sidings. Evidently the work is considered to be of great urgency as material has actually been brought from the Santiago—Corunna line (now under construction and nearing completion) for the purpose. The Algeciras Railway, 177 km. (110 miles) in length, on the 5 ft. 6 in. gauge, was originally built and worked by a British company. It was sold to the Andaluces Company and now forms part of the broad-gauge system taken over by the Spanish Government under the nationalisation scheme which came into force on February 1 of this year. The line, which is single track throughout, affords the only railway communication between Algeciras (and therefore Gibraltar) and the rest of the peninsula. From Algeciras the line ascends on a difficult location with heavy grades and sharp curves, to Ronda, at Mile 66, and 2,460 ft. above sea level, descending thence over easier country to Bobadilla, at 1,245 ft. A daily express performs the journey between Bobadilla and Algeciras in 4 hr. 13 min. but the journey up grade takes 5 hr. 10 min. Algeciras is reached from Madrid in 14½ hr. Passenger trains run through Algeciras Town station to the jetty, on Algeciras Bay, whence there is a frequent ferry service to Gibraltar. The Santiago—Corunna line, from which material has been taken, is part of the Zamora-Corunna Railway scheme referred to in THE RAILWAY GAZETTE of July 21, 1939, at page 91, and January 12, 1940, at page 44.

* * * *

Rail-end Batter and Welding

The most comprehensive investigation yet made in the U.S.A. into rail-end batter and the reconditioning of battered joints has been inaugurated by the Rail Committee of the American Railway Engineering Association. As the result of a questionnaire sent out to a number of railways concerning their methods of building up worn rail-ends by welding, such a diversity was revealed in method and in cost estimation relative to traffic carried, that it was decided to carry out a new and systematic series of tests, on the Richmond, Fredericksburg & Potomac Railroad, in the southbound track near Panola, 33 miles north of Richmond, over which there passes much fast and heavy traffic from New York and Philadelphia to Florida. Nine railways and one welding firm are participating in the test, which will cover twelve stretches of track, each containing fifty joints, laid with 131-lb. rail that has not previously been welded. Each participant will be responsible for welding one set of joints, using its own welders and its own methods, and though the R.F. & P.RR. will have available both gas and electric equipment, each railway will be free to provide its own plant exclusively if so desired. Electric welding, both a.c. and d.c., oxy-acetylene welding, and propane welding will all figure in

the tests. The use of one section of line for the entire series of tests will enable some accurate and valuable comparisons to be made.

* * * *

Losing the Shunt

In the ordinary plain applications of track circuiting with direct locking action of a simple kind, there is usually little risk connected with a momentary loss of shunt during the passage of vehicles, but where automatic operation of certain functions can be set in motion by such a failure the case is very different. In schemes where route setting is stored up in advance, which have sometimes been proposed for regular service as distinct from gravity yard work, a very serious situation might be created if, say, a light engine passed over a badly sanded piece of track, and set points in motion, unless special circuit arrangements were adopted to guard against it. We referred to this problem, in connection with outlying point operation on the French railways, in our issue of February 23, 1940 (page 273). The same question arises with the now frequently used automatic interlocking, used in America at level crossings between two railways where there was originally ordinary mechanical signalling, often at considerable working cost. It is essential in such cases to prevent an intermittent loss of shunt from reversing the signal indications in favour of a train on the other line, should one be approaching.

* * * *

Important American Cab Signalling Rules

In our issue for May 24, 1940 (page 753), we gave details of two curious accidents occurring on an American railway due to failure to exercise proper care when, owing to a defect, a train had to be run under continuous cab signals and A.T.C., but without fixed signals, except at interlocking layouts, with the equipment cut out of service. The Interstate Commerce Commission subsequently issued an order, which took effect from October 1, 1940, enforcing the observance of certain rules covering such exceptional conditions. Their principal feature is that if the cab signal fails the brake control may be cut out and the train may proceed at a speed not exceeding 15 m.p.h. to the next point where the chief dispatcher can be spoken to. (If only the brake mechanism fails, the train may run under the cab signal to such point.) The dispatcher will then issue instructions by train order to all trains concerned, at the same time setting up a temporary block telegraph or telephone working between places where train orders can be given to trains, preventing the one with the defective equipment from proceeding until the line is reported clear to the next such station or signal box in advance.

* * * *

A Locomotive Boiler Extraordinary

Locomotive boilers of very large size have for many years been common in the United States, and among them are some which in respect of proportions and equipment are specially outstanding. Even the largest so far introduced are, however, overshadowed by the boilers of a new class of articulated freight engine recently built by the Baldwin concern for the Western Maryland Railway. The engines, which have the 4-6-6-4 wheel arrangement, have four 22 in. by 30 in. cylinders, coupled wheels 5 ft. 9 in. dia. and a boiler pressure of 250 lb. per sq. in., at 85 per cent. of which a tractive effort of 95,500 lb. is developed. The boiler has a maximum diameter outside of 8 ft. 6 in. and measures 23 ft. long over tube plates. The firebox is over 17 ft. in length at the foundation ring, and the combustion chamber extends into the boiler barrel a further 8 ft. Five thermic syphons are fitted, three in the firebox proper and two in the combustion chamber. The evaporative heating surface total is 5,770 sq. ft., and when the superheating surface of 1,735 sq. ft. has been added, the combined total amounts to 7,505 sq. ft.; the grate area is 118·8 sq. ft. As our American contemporary the *Railway Mechanical Engineer*, in commenting upon this design, remarks, probably considerably more than half the total evaporation will be effected by firebox and combustion chamber heating surface which, in turn, means a high average evaporation per sq. ft. of total evaporative heating surface.

The Drive for Exports

AFTER various vicissitudes the drive for export trade inaugurated soon after the outbreak of war has entered a phase likely to endure for some time. There can be no doubt that the need for a national drive for exports is no less—indeed, it is much greater—than when the Government put forward its original plan, but the development of the war has necessitated changes in the first broad outline. At first the objective was for something like the development of a maximum value of exports and at least to maintain them at the pre-war level. It soon became obvious, however, that greater discrimination was essential and that some selection, both as to markets and goods was imperative, from the viewpoints of shipping space, raw material needs, and the danger of the products ultimately finding their way into enemy hands. The rapid spread of the war had the effect, first, of removing a number of important markets, and secondly, with the fall of France, of throwing a great responsibility, to the exclusion of practically all else, on British industry to meet the threat of attack at home. Now, with the steady calling up of younger men for military service and the difficulties of obtaining certain raw materials, it has become necessary to discriminate as to the industries which should receive Government support, and to concentrate the greatest attention on trade with dollar countries and the sterling group in order to facilitate exchange. The phase which has now been reached is that of a strong re-encouragement from official quarters of exports, attended by selection in its form and direction. In this programme the Export Groups, formed last year and now numbering some 280 and embracing practically every important trade in the country, have an essential part to play. The considerable measure of success which has attended our wartime export trade may be judged from some figures, necessarily not very specific, given on May 6 by Mr. Harcourt Johnstone, Secretary of the Department of Overseas Trade. He said that, despite the progressive loss of markets through Germany's invasion of half the countries of Europe, our foreign trade still managed to maintain an extraordinarily high level. In the last complete pre-war year, 1938, we exported £471,000,000 worth of goods, but in the first full year of war, 1940, we exported £413,000,000 worth of goods. That was a remarkable result, in view of the loss of fully 30 per cent. of our markets. In the first four months of this year there had been no falling off in our foreign trade. Without in any way detracting from the importance of the success achieved, which is in excess of general expectations, it has to be remembered that the figures given relate solely to values and afford no indication of the volume or nature of the trade.

Primarily, the steps which have been, and are being, taken to stimulate exports are a war measure and a vital factor in the war effort. Therefore it is essential that the objective should be pursued with the utmost energy and competence by all the parties, that there should be a proper co-ordination of effort, and that that effort should be most usefully and scientifically directed to achieve the best results. In this way not only would the present endeavour be strengthened, but a foundation would be laid for the future, for, while the present need for exports is insistent, that need will continue after the war, at least until the draft made on our overseas investments as a result of the war is made good. There will, of course, then be this important difference, that in the post-war period there will be available an increasing number of industries able to take part in the export drive. Indeed, it will be vitally necessary then to divert a great deal of the production of the war-augmented output capacity to overseas markets if the industries of this country are to be maintained on an even keel and the transition from war to peace is to be made smoothly. It is to that end, as well as to meeting the present demands on foreign exchange, that our policy should be directed. Even in the present emergency there is no reason why the general principles of a long-term programme should not be initiated, more especially as a number of the factors entering into a successful export drive are equally vital to success in both an immediate plan and one extending over several years.

So far there has been notable absence of any public indication of the steps which are being taken, and there is some

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understandable apprehension as to the degree of vigour with which the drive is being made. Broadly, the three essentials to a programme of this kind—it being assumed that the goods are of high quality and are available—are, forceful direction and co-ordination of effort, efficient propaganda, and adequate and flexible financial facilities. As to the first, it is necessary that the direction of the campaign should be in the hands of a man, or very small body of men, who have practical experience of export problems and who enjoy the full confidence and support both of the Government and the commercial community. The second point is one which is all too often disregarded by British manufacturers but has always been adopted, usually with remarkable success, by their competitors and more especially by Germany and the United States. In the present effort the Willingdon Commission's visit to South America has no doubt done good work, but, unless it is energetically followed up and the good impression maintained and strengthened, it will not bear the fruit it should. The qualities and claims of British products must be kept regularly before the eyes of potential buyers, and even in these days it is necessary to note the obvious fact that it is of little use presenting detailed descriptions of products to people in a language which they do not understand. There is undoubtedly wide scope for improvement in our method of appeal to overseas buyers and only too little evidence of progress in this vital direction, despite the efforts of the Department of Overseas Trade.

Thirdly, special financial provision, including much longer term credits than we have been accustomed to grant are necessary if we are successfully to compete with other countries and to meet the needs of potential buyers. The success which has attended the United States Import & Export Bank in assisting American manufacturers by the grant of long credits to obtain recent important railway contracts in Brazil is an indication of what is required. Hitherto the Export Credits Guarantee Department has in general set its face against commitments spread over a long period of years and for this reason much of its usefulness has been lost. Much will depend on the initiative shown by the Export Groups, but since ultimately their members will be the beneficiaries of success in overseas markets there should be every inducement for them to take the necessary steps, subject to Government sanction. They should at least be assured of Ministerial benediction and support for their efforts, even if the active direction which they have a right to expect is for the time absent. In many cases, since the groups themselves are sometimes composed of relatively few members, much good could be done by co-operative effort so that, for example, all constituents of an industry are represented in endeavours to improve an overseas market. No time should be lost in planning and putting into effect the necessary groundwork, for to await the end of the war would mean not only to lose time which could be turned to good account, but also to pile up leeway and finally to start no better than manufacturers in now enemy countries.

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War Damage and Railways

THE War Damage Act, 1941, which lays down the procedure for the assessment and compensation of damage arising from enemy action, does not apply to the generality of railway undertakings, which will be dealt with under a further Act of Parliament, details of which have yet to be announced. Section 40 of the present Act covers the position of (*a*) public utility undertakings; (*b*) any undertaking of such a kind that the valuation for rating purposes of hereditaments in which the undertaking is carried on is made by reference to the accounts, receipts, profits, or output of the undertaking; and (*c*) any other undertaking to which Parliament may determine that the section shall apply. The expression " public utility undertaking " is defined as meaning any of the following undertakings the carrying on of which is authorised by any enactment, scheme, or order: any railway, light railway, tramway, trolleybus, canal, inland navigation, dock, harbour, quay, pier, lighthouse, gas, electricity, hydraulic power, sewerage, sewage disposal, refuse disposal, or water undertaking in the United Kingdom, and the undertaking of any drainage authority. It is added that any undertaking carried on by those who carry on a railway undertaking, which is a public utility, shall be deemed for the purposes of this section to be part of the railway undertaking.

In the case of concerns to which this section of the Act applies, it is provided that if at the relevant date in any year any contributory property is occupied mainly or exclusively for the carrying on of that undertaking no instalment of contribution towards the war damage scheme shall be payable, and that the contributions towards the expense of making payments in respect of war damage shall be laid down by Parliament later. No payment will be made in respect of damage to a hereditament covered by this section under the general scheme outlined in the Act, but the payments shall be made as Parliament may determine at a subsequent date. The War Damage Commission, however, may make to the persons carrying on the undertakings payments towards the cost of works certified by the appropriate department to be urgently required for meeting the circumstances created by war damage, and any payments so made shall be in part satisfaction of the payments which will be made under the scheme which is to be drawn up by Parliament later.

No indication has yet been given as to the stage which has been reached in the drafting of the Bill for covering public utilities, including railways, against war damage. On the other hand, it is important to note that in the House of Commons on May 8 Sir Kingsley Wood, the Chancellor of the Exchequer, stated that insurance of the movable property of public utility undertakings against war damage should be deferred for the time being in view of the further legislation foreshadowed for such undertakings. The days of grace, he said, for taking out insurance of goods falling within the War Damage (Business Scheme) Order would if necessary be extended accordingly. Although the vast majority of railway and similar undertakings will be covered by the Bill which is in course of preparation, so far as effects compensation for war damage, there remain one or two cases which by reason of their constitution fall outside the operation of the impending legislation. The Snowdon Mountain Railway Limited, for example, which owns a tramroad of about 4¾ miles from Llanberis to the site of Snowdon and also the Victoria Hotel at Llanberis and the Summit Hotel, is understood to fall outside the scope of the legislation now being prepared since it is a public company and not operated under any enactment, scheme, or order. It is believed, therefore, that for the purposes of insurance against war damage the undertaking will fall within the general provisions of the War Damage Act, 1941.

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Queensland Government Railways

THE gross earnings for the year ended June 30, 1940, again showed an increase, being £279,641, or 3·66 per cent. higher than in 1938-39, when the figure was the highest recorded. The business transacted during the year established new records all round. Besides the gross earnings, train mileage, goods tonnage, and ton mileage all reached unprecedented peaks. Working expenses advanced by £185,930, or 3·08 per cent., and net earnings improved by £93,711. Operating figures are compared as follow :—

	1938-39	1939-40
Miles open	6,467	6,467
Passenger journeys	24,549,088	24,532,228
Goods, minerals, and livestock, tons	5,179,821	5,418,823
Train miles	13,822,846	14,090,419
Operating ratio, per cent.	79·26	78·81
	£	£
Passenger revenue	1,522,506	1,573,732
Goods, mineral, and livestock revenue	5,404,340	5,646,285
Total earnings	7,657,345	7,936,986
Working expenses	6,068,928	6,254,858
Net earnings	1,588,417	1,682,128

After meeting interest on capital a surplus remained of £20,007, as compared with the deficit recorded for 1938-39 of £53,310, although interest on capital, at 4·129 per cent., was £20,394 more. The net earnings represented a return on capital of £4 5s. 4¾d. per cent. (against £4 1s. 6¼d.). Of the increase in expenditure, the greater part was accounted for by additional payments to the staff for the variation in the basic wages award, and automatic increases

and workers' compensation. Additional cost was incurred in handling the greater volume of business and in higher prices for materials, as well as for the protection of railway property as a war measure.

Although the war might have been expected to have an adverse effect on passenger traffic, especially holiday and excursion business, the reduction in the number of passenger journeys is comparatively slight and there was actually an increase in receipts. Country passengers numbered 4,703,475, a decrease of only 16,505, and the total of suburban passengers, 19,828,753, was also practically the same, being only 355 less. Receipts from country passengers, at £1,245,369, were, however, £31,200 higher, and suburban receipts, at £328,363, were also higher by £20,026. In both country and suburban bookings there was again a decrease in first class travel, compensated in number and receipts by an increase in second class and workers' tickets. The paying tonnage of goods carried, without livestock, was 4,907,775, or 255.699 tons more than the previous record quantity carried in 1938-39, and the improvement in goods revenue amounted to more than a quarter of a million pounds, or 4½ per cent. The greatest increase was that of £102,586 from the carriage of sugarcane and sugar, the production of which was a record. The 93,042 tons of wool carried was also a record, as was the 184,618 tons of wheat. Mineral traffic, especially that from the Mount Isa mines, was adversely affected by the coal-miners' strike of March-May, 1940. The decrease in tonnage, however, was compensated by the higher rates in force.

The steam locomotive power was increased during the year by eight engines of the "B 18¼" class constructed in the Ipswich workshops. In view of the need for additional locomotive power a contract has been given for the construction of six more of these engines. One new diesel locomotive was put into service on the Etheridge railway. The construction of 186 wagons was completed, and thirty tenders from condemned locomotives were converted into 15 thirty-ton wagons. Railcar mileage continued to increase, the total of 1,947,803 car miles being 13,398 more than in the previous year. The new passenger terminal at Roma street, Brisbane, was expected to be ready for traffic in December, 1940. In common with other industries the activities of the Railway Department have been affected by the war and besides the heavy special traffic, work has been undertaken for the Defence Department. The question of non-paying sections of the railway system was considered by the Transport Commission, in accordance with the State Transport Act of 1938, but it was decided not to close any of them.

Publications Received

The Stock Exchange Official Year Book, 1940. London: Thomas Skinner & Co. (Publishers) Ltd., Gresham House, Old Broad Street, E.C.2. 10 in. × 7 in. × 3½ in. 3,207 pp. Price £3 10s. net (post free, British Isles £3 11s. 6d., Europe £3 13s. 9d., U.S.A. and Canada $26 (duty paid), elsewhere, £3 15s. 6d.).—Notwithstanding the fact that wartime conditions must have made the compilation of this useful work of reference unusually difficult, the authors have once more produced a comprehensive work containing a vast mass of essential information relating to companies whose securities are of interest to the public. Because of the paper shortage, excisions have necessarily been made. Recent information about securities situated in enemy-occupied territories has, of course, been unobtainable and in these cases previously-published figures are reproduced. A useful feature of the present issue is a list of emergency addresses of companies, registrars, and so forth, given in the supplement which, as usual, contains information received too late for insertion in the appropriate section.

The Blue Book, or Electrical and Engineering Trades Directory, 1941. London: Benn Brothers Limited, Bouverie House, 154, Fleet Street, E.C.4. 9½ in. × 6 in. 895 pp. Price 25s. net.—Changes of addresses, due to evacuation and other causes, have made up-to-date directories doubly valuable, and a few tests applied to this year's "Blue Book" appear to show that its information is reliable in this direction. Paper difficulties have resulted in the use of a lighter grade, but otherwise the well-known features of this reference book have been well maintained. It is always a puzzle to see the perpetuation of certain obvious omissions, as for example the absence of the British Thomson-Houston Co. Ltd. and the Metropolitan-Vickers Electrical Co. Ltd. from the classified lists of turbine and switchgear makers, but in so much that is valuable perhaps such points may be passed over; the firms in question duly appear in the alphabetical section. The use of thumb tags to facilitate quick reference is a helpful feature in a work of this kind, especially as the tags are mounted on thick cards which assist to emphasise the sections. There is also a movable book-marker. The directory is, of course, very distinctly electrical in flavour; the reference in the title to "engineering trades" is only justified in so far as steam plant and auxiliaries connected with electrical generation and manufacture are included, but other equally important branches of the engineering trades are excluded.

Electro-Pneumatic Route-Unit System of Point Control for Marshalling Yards.—Published by the Westinghouse Brake & Signal Co. Ltd. of Chippenham, two sheets of text and six photographic reproductions describe a marshalling yard on the G.W.R. equipped with e.p. point mechanisms and a system of route-setting operated from a desk type panel apparatus of very neat construction, with a general explanation of the principles involved and method of operation.

Firth Brown Cutters.—In a handsome brochure of 32 pages, Thos. Firth & John Brown Limited set out in some detail illustrated particulars of Zeelock serrated blade cutters. Information is given in the opening pages about the design and fitting of the cutter blades, and also, in subsequent pages, of the complete cutters themselves. These are of several different kinds, adaptable to numerous operations in the engineering industry, including milling, facing, and other machining processes. Useful information with illustrations is given respecting the method of removing the blades from the body of the cutter, and re-assembling and adjusting them.

Tyre Inflators.—A new device for inflating the tyres of road vehicles fitted with air brakes is illustrated and described in leaflet No. 500/1140 published by the Westinghouse Brake & Signal Co. Ltd., of Chippenham. Low-pressure and high-pressure types are available; the first takes air from the reservoir, but the second type, for use where the normal brake pressure is too low for inflation, is connected to the compressor delivery pipe.

The Machining of Aluminium Alloys.—The latest authoritative contribution to available literature on the machining of aluminium alloys is embodied in a bulletin issued by the Research and Development Department of the Northern Aluminium Co. Ltd. This publication, the first to be issued under the ægis of the new Research and Development Department, which incorporates the former Research and Sales Engineering Departments, deals exhaustively with problems which have achieved considerable prominence as a result of the great drive for increased production of machined light-alloy products. High-speed working is a feature of aluminium alloys, and the inherent properties of the metal and its alloys which contribute to this are reviewed, including the Brinell number, the high coefficient of friction of aluminium on steel, high thermal conductivity, high expansibility and relatively low notch strength. Alloys of high silicon content are accorded special attention, particularly with regard to the use of tools tipped with cemented carbides to obtain a high finish.

The characteristics of low-tensile and high-tensile alloys are reviewed, as are also cutting materials. Functions of the various cutting fluids are also dealt with, whilst a feature likely to be of particular interest to machinists is the analytical descriptions relating to chip formation and behaviour. The latter part of the bulletin is devoted to a review of cutting tools.

THE SCRAP HEAP

Two policemen in a South Wales coastal town found a delayed action bomb which had been dropped during a raid. They placed the bomb in a motorcar and took it to a local park. Fearing, however, that if it were left there it might damage an adjoining railway track, they replaced it in the motorcar, carried it to the pier, and threw in into the sea, where it exploded.

* * *

TRAVELLERS FORCED TO BATHE

Soviet quarantine measures, under which travellers arriving from Manchukuo to take the Trans-Siberian Railway have to remain in quarantine seven days in the Soviet border town of Otpor, were published in the *Deutsche Zeitung in Nordchina* on January 9 last. All passengers crossing into Soviet territory from Manchukuo are first compelled to take a shower bath. Then their clothes are disinfected, and finally they are kept *incommunicado* seven day. in an "isolator" railway car. It is believed that these measures were decided upon in connection with the recent outbreak of bubonic plague in Manchukuo.

* * *

PIKE'S PEAK RACK RAILWAY

The Manitou & Pike's Peak Railway is now a reality. The trial trip over the entire line was made October 20 last, and subsequent operation of passenger trains over a large portion of the road has proved the full success of the undertaking. . . . The road is operated by the Abt cogwheel system. The maximum degree of curvature is 16, or a curve with a radius of 359 ft. The length of the road is a few feet less than 9 miles, of which 2¾ miles are above timber line. The elevation of the station at Manitou is 6,563·3 ft., the summit of Pike's Peak 14,115·3 ft., the elevation overcome between the points being 7,652 ft.—*From the "Scientific American" of January*, 1891.

* * *

The last surviving direct link with the famous Canadian railwayman, Sir William Van Horne, was severed on February 24 by the death of Miss Adaline Van Horne, his only daughter, in Montreal. Miss Van Horne was known to her friends as a connoisseur of art and maintained the famous Van Horne art collection with great care. She took a keen interest in community charitable works, which she supported with liberality. The family went to Montreal in 1881, and Sir William rose rapidly in the executive ranks of the Canadian Pacific Railway and was made president in 1888. One of his sons, Mr. Richard Benedict Van Horne, took an active interest in the Cuba Railroad Company; he died in 1931. Sir William was knighted by Queen Victoria and died on September 11, 1915.

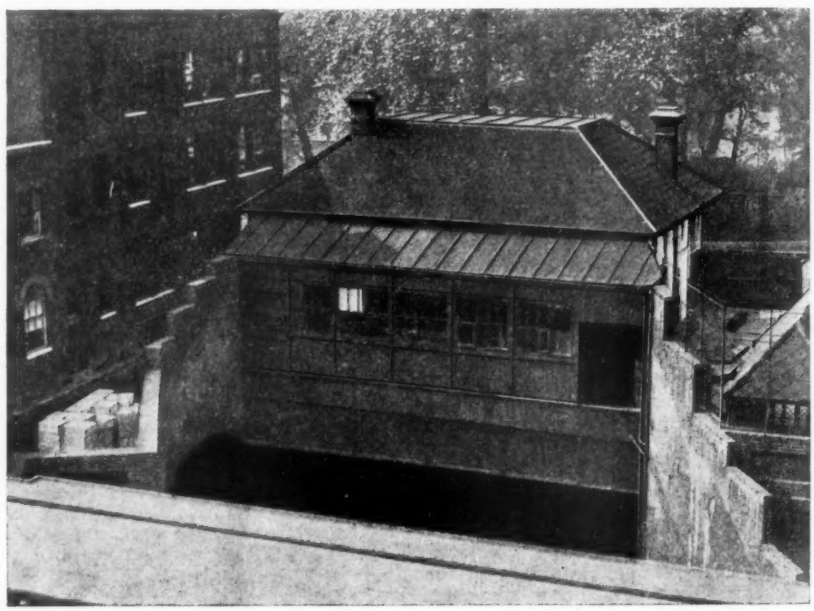
MONUMENT TO A STILLBORN RAILWAY

Every afternoon of my time in the city, when I had finished drawing, I walked into Chengtu to be refreshed by the tumultuous life of the streets and by the cigarettes which were unwelcome in the compound where I lived. . . .

Towering fittingly over this hurly-burly was a monument celebrating the completion of a railway which had never been built, a spike of an architecture as arresting as its history. Its plaster heights rose nearly a hundred feet to an undersized cupola of purple tiles and were decorated with big bas-reliefs of railway equipment—a switch, a section of track, and so on—which with a modicum of distortion had been made to form Chinese characters of auspicious meaning. At the base of the column was a larger bas-relief of a train, with a stone locomotive which suggested a baby carriage containing a barrel and a telephone booth, and a coal car which was Noah's Ark on wheels. Blatantly unstreamlined, the train was striped with bands of acanthus leaf and egg-and-dart moulding; its smoke-stack had a floral border. The miraculous wagon was equipped with golden wheels and bells and, as I remember, emitted a chaste puff of guilded smoke.

This memorial was an interesting by-product of the affair which overturned the Manchu dynasty. Ever since the time when the first railway was built in China there had been plans for the opening of the immensely-rich province of Szechuan by a line from Hankow to Chengtu, and in 1910-11 the necessary money was raised by subscription in Szechuan and Hupeh. A course was plotted through the Gorges along the north bank of the Yangtze, an elegant station was built in Ichang, a commodious station hotel was constructed in Chungking, and this shaft was thrown up in Chengtu. Before more than a few miles of track had been laid, however, the Government in Peking awoke to the potentialities of the project and declared that when finished the railway would be Imperial property. At this the Szechuanese rebelled and, as the time was ripe, their action led to a nation-wide revolt.

The Chengtu revolutionaries were fantastically colourful in the Szechuanese manner—they costumed themselves as heroes of the stage and their energies were chiefly occupied in tying ropes across the main streets so that when Imperial officials rode by in their litters they would have to get down and crawl under, losing face. Though the revolution as it spread became serious enough, its effect on the project which had begun it was also in the legendary celestial style; in the uproar the man in charge of the railway funds absconded with them to the International Settlement in Shanghai, where, as I understand, he is still living in a lavish manner. No more work was done on the railway.—*From "Through China's Wall," by Graham Peck.*



The former Tower station of the Metropolitan Railway, facing Trinity Square Gardens on Tower Hill. It was opened on September 25, 1882, and closed on October 13, 1884. This wooden station building on the surface remained virtually unchanged until September of last year when it was demolished as part of the Tower Hill Improvement Scheme. **(See our issue of September 27, 1940, pages 320 and 321)**

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

RHODESIA

New Operating Records

The first war year has produced new operating records by the Rhodesia Railways and in no previous months in their history have the operating figures been as high as in August and September, 1940, nor in any year as high as they were in the year ended September 30, 1940. Up to 1937 the busiest month in the history of the railways was October, 1929, when the number of engine-miles run was 664,243. During the depression this figure dropped as low as 270,799 engine-miles in January, 1933, but the high 1929 figure was eclipsed in October, 1937, with an engine-mileage of 665,312. The 1937 record held good until August, 1940, when the engine-mileage was 666,116, but in the following month a further record of 685,637 engine-miles was established.

The number of engine-miles run for the year ended September 30, 1940, was the record for any one year, achieving a monthly average of 590,848 compared with which it is interesting to record the monthly average engine-mileage of 278,040 in the depression year of 1933. These results which have been attained with a reduced staff, owing to men being released for military service, are indicative of the part the Rhodesia Railways are playing in the war effort of the Empire. Factors contributing to these results are the conveyance of increased base metal outputs for export, the movement of troops and war supplies, the Empire Air Training Scheme, and, to a smaller degree, traffic to and from the Belgian Congo which is cut off from its mother country.

SOUTH AFRICA

Rail & Air Activities in 1940

The year 1940 covered a period of unparalleled railway activity and in this connection a number of new traffic records were established. But the exception to the general upward trend in traffic revenue was in respect of the air services. After the outbreak of hostilities in September, 1939, it became necessary to curtail severely the scope of these services and in May, 1940, they were suspended entirely. In December last, however, weekly services were resumed between Johannesburg and Angola (P.W.A.) and between Johannesburg and Entebbe (Uganda).

Seven Months' Results in 1940-41

The accounts of the South African Railways & Harbours for the first seven months of the financial year 1940-41 (April 1-October 31) disclose that the earnings of railways, harbours, steamships, and airways totalled £24,669,585, compared with £23,052,665 in the corresponding period of 1939, and the total expenditure amounted to £21,484,248 against £20,828,886. In pursuance of the policy followed in recent years of using the excess of revenue over working expenditure for consolidating the financial position of the railways and subsidiary services, special appropriations amounting to £1,684,083 in the aggregate were made from revenue and credited to the various funds, leaving a surplus at the end of October, 1940, of £1,501,254.

BRAZIL

São Paulo-Santos Passenger Service

The latest published timetable of the San Paulo Railway current in February, 1941, shows that there are 14 passenger trains each way on weekdays between São Paulo and Santos, and 16 each way on Sundays. Some of the trains include buffet cars, others Pullman-bar or restaurant and Pullman cars, and some with Pullman accommodation are diesel-powered. There are also a few with restaurant cars only. Eleven of these trains carry first class passengers only and four second class only.

The distance between the two cities is 49 miles but traffic over the section is controlled by the working of the Serra rope inclines, over which trains pass in three-coach units, fed on to the rope at 9-min. intervals. The timetable is compiled so that up and down trains balance as far as possible on the rope-worked section. Actually, there are five inclines working on the endless rope system, each with its separate rope hauling plant, working simultaneously; the older inclines, built in 1857, are 8½ km. (5¼ miles) in length, and the new inclines, completed in 1900, are 11 km. (6·8 miles) long. Both sets of inclines serve to lift this heavy passenger and also goods traffic—amounting to as much as 15,600 gross tons a day in the upward direction alone—through the 2,525 ft. difference in level, separating the coastal plain from the tableland of São Paulo.

The fastest train from Santos to São Paulo takes 1 hr. 36 min. and is a diesel-powered Pullman three-coach unit; in the opposite direction the best timing is 1 hr. 40 min. The time taken by these trains in negotiating the incline is only 39 min., but heavier trains, having to be split up for traversing the incline, take anything up to about 2½ hr. for the whole journey.

Expropriation of the Mogyana Railway

There seems to have been some confusion of ideas regarding the expropriation of the Mogyana Railway, recorded in THE RAILWAY GAZETTE of January 10 as having been confirmed. Actually there has been no confirmation up to the present time.

ARGENTINA

Public Works Estimates

A sum amounting to over 197,000,000 pesos has been allocated by Government Decree to be expended on public works in Argentina during the current year. Of this amount some 26 millions are allotted to various unspecified State Railway schemes. The Decree stipulates that preference is to be given to the completion of works already in hand before work on new projects is begun.

Railway Accidents

On February 11, a head-on collision between a cattle train and a goods train at Temperley, on the local section of the B.A.G.S.R., resulted in a large number of sheep and cattle being killed. There was only one case of slight injury among the train staff. The accident is attributed to wrongly-set points. A day or two later a collision occurred near Cosmes station on the B.A.P.R. in the Province of San Luis, between the Cuyano express, which runs between Buenos Aires and Mendoza, and a locomotive, resulting in the derailment of two of the coaches of the express and slight damage to the Pullman car at the rear of the train. Some of the passengers were shaken, but there were no serious injuries, and the train was delayed only about a quarter of an hour.

UNITED STATES

Chicago Great Western Receivership Ends

On February 19 the receivership, under which the Chicago Great Western Railroad had been managed since February, 1935, terminated, and the re-organised properties of that company were transferred to the newly-formed Chicago Great Western Railway Company by order of the District Court. The court also authorised the purchase of the St. Paul Bridge and Terminal properties, now leased, for $1,500,000, and the loan of $6,400,000 from the Reconstruction Finance Corporation, secured by $9,000,000 first mortgage bonds. The C.G.W. is the second major railway to emerge from trusteeship.

Mr. Patrick H. Joyce, a trustee during receivership, has been elected President and Chairman of the Executive Committee of the new company. [Other appointments were announced in our issue of May 9—ED., *R.G.*] The system comprises 1,518 route-miles of line, and connects Chicago with Minneapolis, St. Paul, Kansas City, and Omaha.

FEDERATED MALAY STATES

Revenue in 1940

The total revenue from all sources for the year 1940 was £2,302,158, compared with £1,727,292 for 1939, an increase of £574,866 or almost exactly 33·3 per cent. The actual revenue figure for the year exceeded that originally estimated by approximately 40 per cent.

TENDENCIES IN AMERICAN SIGNALLING

During the last 40 years progressive automatic signalling and power interlocking have characterised American signalling. More recently A.T.C. and C.T.C. have been introduced

THE radically different conditions of railway working in Great Britain and the United States early led to the development of signalling and operating methods along distinct and separate lines, and for many years, notwithstanding certain inevitable similarities, considerable differences, full of interest for the signal engineer, were to be found between the practices of the leading railways in the two countries. In some measure, this is still so. The rapid growth of the British railway system, the generally heavy traffic, the frequency of stations and junctions, all contributed to the early adoption of interlocking and block working, long before many other countries used those safeguards on a similar scale.

There was little scope for automatic apparatus, in the possibilities of which, in any case, owing to a natural conservatism in such things, little confidence was felt for a long time. In America the large proportion of single line, the great distances between important centres, and the relative infrequency of the trains on many routes, necessitated other methods of regulating the traffic. Even where block working was feasible, block telegraph instruments, such as have long been familiar here, were not adopted, Morse messages being used, while the train staff and ticket system, as far as we have been able to ascertain, has never been used in North America. Eventually, near some large cities a certain amount of lock-and-block made its appearance and was eventually used on a few single lines. The electric train staff found some favour, but was comparatively little used considering the enormous extent of single line mileage.

Train Dispatching and Automatic Signalling

The principal results of these conditions were twofold: Train dispatching was developed into a highly codified system of rules, largely relied on to secure safety as well as expeditious operation, although too easily liable to mistakes or negligence. At the same time a wide field was opened to automatic signalling, of which engineers were not slow to take advantage. The invention of the closed track circuit became the foundation of all subsequent work in this direction, for although, of course, power operation of points and signals—in which considerable pioneer work was carried out in America—was not dependent on the track circuit to begin with, it needed it for its full economic uses to be realised.

The wide extension of automatic signalling, on both double and single lines, providing a safeguard on the latter against mistakes in working the dispatching system, may be considered to be the chief characteristic of American signal engineering during the last forty years, when a very large mileage has been equipped. In the last twenty years, however, other lines of development have opened out.

Under the compulsion of legislation a large amount of A.T.C. and cab signal apparatus of various designs has been produced and is in regular service on some important railways. In a few instances, for city electric services, this has been developed to a remarkable degree of perfection, giving positive speed control over the motorman, but such elaborate apparatus is necessarily costly and requires a very high standard of maintenance. Whether A.T.C. equipment will become at all general in America, however, remains to be seen. Coincidently with this has come the invention of new track circuit systems, a fitting sequel to the earlier work done in applying alternating current to track circuiting, and track circuiting itself to electric railways. Coded systems are now coming more and more into use and are held to possess appreciable advantages, although they are less simple than the earlier forms. Automatic signalling is still being installed, 307 miles of single and 435 miles of double line having been equipped in 1940, but there are 60,000 miles of track now equipped with it and only about 5,000 remain on which such signalling would be justified. As our American contemporary *Railway Signaling* emphasises, a very great proportion of this equipment has been in service a long time, together with large numbers of interlocking plants, and there is much modernisation and renewal work to be undertaken in the next few years.

It is to be expected that centralised traffic control will play a great part in these changes. Peculiarly adapted to American conditions, C.T.C. is the natural complement of the dispatching system, placing the entire control of all signal, point, and train movements in the area under his charge directly in the dispatcher's hands. This practically amounts to an almost indefinite extension of the limits of power interlocking, made feasible by coding and other circuiting features, which have reduced the line wires or cables to a minimum economically admissible. More than 260 route miles of this system were installed in 1940.

At the large stations, and on the lines in the vicinity, such complete centralisation of control is naturally not suitable, and power signal boxes are required. It is interesting to note that many important installations of the long-established individual lever system are still being made, and that in these mechanical interlocking is used, the electrically locked lever power frame having apparently met with little or no favour. On the other hand, installations employing circuit interlocking, with panel apparatus, sometimes on the route principle, are meeting with much success, and 34 installations were brought into service in 1940. There were also 26 new automatic interlocking equipments at level crossings between two railways, of which there are large numbers in America. The signalling at the St. Louis terminus, where, as reported in an editorial note in our issue of October 4, 1940 (page 349), a fire destroyed a 262-lever electro-pneumatic power frame on July 22, 1940, was renewed on the same system, with certain improvements, and put into service on November 30. The introduction of panel type equipment has rendered useless for purposes of comparison the old classification of signal boxes by numbers of levers, and a system based on units of equipment is now being used.

Changing Function of Signalling

Recent somewhat stringent regulations issued by the Interstate Commerce Commission have necessitated many alterations and additions to the signalling at numerous places, to meet the higher speeds and heavier trains now seen on so many routes. During the next few years we may expect to see much of the early power signal equipment, the production of which reflected great credit on its designers at the time, disappear in favour of new devices. The opinion is now being advanced that automatic signalling on single lines has had its day and must give place to C.T.C. methods. This is certainly a logical conclusion, provided the change is economically justifiable, as in many instances it would appear to be. The old signalling was put in to give security against collisions, in case a mistake should occur in the working of the dispatching system, primarily responsible for regulating the train running. In this capacity, whether installed on the old overlap or the later absolute-permissive principle, it has rendered enormous service to American railways, for it is beyond dispute that before its adoption the number of accidents due to mistakes or carelessness in the single line working was disagreeably large. Changing conditions are said to be giving rise to difficulties in the satisfactory arranging of single line automatic signals, and C.T.C. is a way to meet them.

American signal engineers have been fortunate in having had a vast field in which to work, with widely varying conditions, calling for a great variety of apparatus, frequently necessitating manufacture on a large scale. They have accomplished great things, and much they have done has lessons for us on this side of the Atlantic, where, however, our principal installations are in no way inferior technically even to the best American apparatus.

ROAD TRANSPORT SECTION

This section appears at four-weekly intervals

South African Railway Road Services

ONE of the best known pioneers of railway-owned road services is the South African Railways & Harbours Administration. The remarkable rapidity of the growth of this organisation is not, however, so generally appreciated. Being a State concern, the administration has been concerned primarily with the expansion of its road motor service network with the object of assisting in the development of outlying rural areas, but the important secondary purpose of these services acting as feeders to the railway has also been kept constantly in view. The first step in the field of road transport was taken in 1912 with the opening of a 20-mile service between Botrivier and Hermanus, and expansion continued steadily until 1925, when the demand increased to such an extent that it was found necessary to establish a separate branch of the Railways Department, with headquarters at Johannesburg, to control these services. The phenomenal growth during the last 15 years is shown in the following comparative statement:—

Date	Route-miles operated
March 31, 1925	501
" 1929	9,285
" 1936	11,292
Decr. 1, 1940	16,885

At the last-mentioned date there were nearly 1,100 vehicles in service, including some 120 for the conveyance of passengers, 540 for both passengers and goods, and the rest trailers. During 1940 more than 6,000,000 passengers were conveyed by departmental road motor services; cream traffic considerably exceeded 2,000,000 gal.; and goods traffic and livestock totalled approximately 800,000 tons and 38,000 head, respectively. The establishment of the road motor services represents a considerable financial saving to the country for the reason that it would otherwise have been necessary to construct branch lines in areas now admirably catered for by road transport costing much less than railway construction and operation.

Ringsend Bus Garage, Dublin

IN January, a new bus garage at Ringsend was completed for the Dublin United Tramways Co. (1896) Ltd. to supplement a series of somewhat similar buildings erected elsewhere in the city and suburbs to house the company's new fleet of buses. The new garage, whch is close to the former tramway power station, is built on a site measuring, approximately, 275 ft. by 227 ft., of which an area of 275 ft. by 162 ft. is covered by the garage and ancillary buildings, and the remaining space laid out as a parking yard. The buildings and yard are so arranged that incoming buses pass through the yard before entering the garage, entrance to which is through three specially-equipped bays, in which all buses are washed before being garaged. The garage itself is planned to give the maximum unobstructed floor space so as to allow as much freedom as possible in manœuvring buses into and out of parking positions. The arrangement of the roof supports provides for two entirely clear floor areas of approximately 15,500 sq. ft., and 13,376 sq. ft. Accommodation is for 75 to 100 buses, according to the methods of parking employed. The portion of the building adjoining Ringsend road consists of two storeys, with mezzanine floors at each side of the exits. The upper floor in this section is allocated for offices connected with conductors' accounts, etc., and for a canteen for conductors and drivers. The lower portion is for the most part made up of two large exit openings from the garage, each of which measures 58 ft. wide by 16 ft. 6 in. high. Provision has been made for inspection pits connected with a sunk workshop at the same level, stores for various accessories, and machinery for certain running repairs. The construction of the two-storey building adjoining Ringsend road is of reinforced concrete, with concrete pile foundation. The whole of the two longer walls of the upper portion are so reinforced as to act as 18 ft. deep lintels over the two 58 ft. wide exit openings. The garage proper is supported on stanchions carrying two parallel rows of steel roof trusses of 81 ft. 6 in. span each. Having regard to the conditions imposed by the war on the building trade in Eire, and consequent difficulties in obtaining materials, it is of interest to note that this extensive building has been completed within a period of twelve months from the date of the signing of the contract. For certain of these details we are indebted to *The Irish Times*.

Road Traffic Calculations

ON April 22 Mr. A. J. H. Clayton, B.Sc., A.M.Inst.C.E., presented a paper to the Institution of Civil Engineers, entitled " Road Traffic Calculations." In his introduction he explains that in considering various methods of road traffic control, calculations based on the best available data are more likely to be correct than general impressions. The methods in use have been developed mainly by our Ministry of Transport engineers and by their counterpart in America. The principal data on which traffic calculations are based are traffic statistics, best taken at road intersections. The separation of traffic into its different directions is more important than its detailed division into a multiplicity of types, and the following five were sufficient: (*a*) buses, (*b*) heavy and (*c*) light motor vehicles, (*d*) slow moving vehicles, and (*e*) bicycles. The author of the paper recommended short counts—during, say, half a day—with careful choice of period, in preference to censuses extending over long periods. Standing vehicles can be assessed from a mean counted throughout that period. Traffic volume is stated in vehicles an hour, and traffic density in vehicles an hour in a traffic lane. Differences in traffic volume are due to variations in speed and composition of traffic, and also to such delays as a traffic hold-up at a road intersection. At a controlled intersection there are bound to be intermittent rates of flow at saturation density, and in fixing traffic light periods it is possible to work to figures obtained from formulæ based on this density, the " delay " or " intersection " factor, and other considerations. The paper goes on to consider problems such as the effect of speed on traffic density, the relation between speed and the maximum safe density, headway between vehicles, stopping time, brakes and road surface, the capacities of controlled intersections and bottlenecks, and of roundabouts and one-way streets; most of the conclusions are supported by appropriate formulæ. The paper concludes by stating that the methods it describes can be applied to the solution of specific problems in traffic control and the design of street improvements, or to the determination of general principles.

British Guiana Road Services

The report of the British Guiana Transport & Harbours Department for the year 1939 showed, for the road motor services operated by the Department, a loss on working of $2,395, compared with the deficit of $5,854 in 1938. Earnings were $76,867 and expenditure, $79,262. The equipment comprised 24 vehicles (1 Thornycroft, 10 Ford, 13 Morris). The mileage run during the year amounted to 283,459, against 268,126 miles in the previous period. Passengers numbered 11,883, or 532 less than in 1938, and 5,022 tons of goods were transported, or 34 tons more than in the year before.

XUM

Road Transport and the War—21

Schedule of reserved occupations—Keeping trolleybuses running after air raids—The savings drive—Alternative fuels

A revised schedule of reserved occupations and protected work has recently been published by the Ministry of Labour & National Service and is on sale at H.M. Stationery Office, price 1s. A brief outline of the provisions of the revised schedule, which is part of the general plan for mobilising the whole man power and women power of the nation, was published in THE RAILWAY GAZETTE for April 25. The changes proposed by the new schedule will take place in three stages :

A. Under which men may be called to join their units at any time after June 1.
B. Under which they will not be required to join their units till July 15—and, may be, some time after.
C. Under which they will not, as far as can be foreseen, be required to join their units before October 1.

The following entries appear in the schedule under the heading of Road Transport (Passenger & Goods) :—

Occupation	Age of Reservation from Stage			Remarks
	A	B	C	
Operating Staff				
Controller, manager, assistant manager, sub-manager, senior depot clerk (depot road transport)	25	25/35	—	—
Depot inspector, vehicle inspector, depot foreman	25	25/35	—	—
Inspector (public passenger service) ...	25	25/35	—	—
Yard foreman, parcel foreman (road transport depot)	25	25/35	—	—
Goods loader (road transport depot) ...	35	—	—	VM
Porter (road transport depot)	35	—	—	VM
Public Service Vehicle, Tramcar, Trolley Vehicle, Driver, etc.				
Tram motorman, tramcar driver, relief driver,* reserve driver*	25	—	—	—
Trolleybus driver, relief driver,* reserve driver*	25	—	—	—
Public service vehicle (omnibus or coach) driver, relief driver, reserve driver* ...	25	25/35	—	ST
Steam Wagon Driver, Traction Engine Driver, Road Roller Driver				
Road locomotive driver, traction engine driver	25	25/35	—	—
Steam wagon driver, steam lorry driver ..	25	25/35	—	—
Road roller driver, steam roller driver, motor roller driver	35	—	—	—
Steerer, steersman	25	25/35	—	—
Motor Van, Lorry, Tractor Driver				
Driver of commercial goods vehicle (exceeding 2½ tons unladen weight)	25(*a*)	—	—	ST
Tractor driver (road), articulated vehicle driver	25(*a*)	—	—	ST
Tractor driver (timber haulage)	21	—	—	ST
Commercial goods vehicle (1½ to 2½ tons unladen weight) driver	30	30/35	—	ST
Electrically-Propelled Goods Vehicle Driver (excluding Truck Driver)				
Driver of heavy vehicle exceeding 2½ tons unladen weight	25	—	—	—
Driver of goods vehicle of 1½ to 2½ tons unladen weight	30	30/35	—	—
Cattle Transporter, Livestock Transporter				
Driver of heavy vehicle exceeding 2½ tons unladen weight	25	—	—	ST
Driver of vehicle of 1½ to 2½ tons unladen weight	30	—	—	ST
Coal Carman, Coke Carman (Motor)				
Driver of heavy vehicle exceeding 2½ tons unladen weight	25	—	—	ST
Driver of vehicle of 1½ to 2½ tons unladen weight	30	—	—	ST
Horse Vehicle Driver				
Carman, carter (not coal mine) (heavy two-wheel vehicle)	25	25/35	—	—
Lorry driver, drayman, heavy van driver (heavy four-wheel vehicle)	25	25/35	—	—
Coal carter, coal carman, coke carter ...	25	30	—	—
Horse keeper, ostler (including colliery ostler)	30	30/NR	—	—
Timber haulier (horse)	21	—	—	—

* Applies only to men certified by undertaking to be employed as relief or reserve driver, when required
(*a*) Men *below* the age of reservation may join the Auxiliary Fire Service in their trade capacity ; men may, *irrespective of age*, join the Air Raid Precautions Rescue Party Service in their trade capacity
NR = Not reserved
VM = Men in these occupations may, irrespective of age, be accepted for service in any branch of His Majesty's Forces or of the Civil Defence Services
ST = To be called for service in trade capacity

Where two ages appear against an occupation the lower age applies to men engaged on work which is "protected" because of its importance in the war effort, and the higher age applies to men engaged on "unprotected work." Men between the two ages will be reserved if they are on protected work but will be available for service if they are on unprotected work.

Applications must be made by employers for admission as "protected establishments." Admission of an establishment to the register will not mean that all the men in that establishment are reserved but that they have the benefit of the lower age of reservation. The register will be organised locally in the divisional offices of the Ministry.

Among the classes of establishments which the Minister of Labour & National Service is prepared in the first instance to consider for admission to the register of protected establishments are :—

(*a*) Road transport undertakings, and
(*b*) Establishments, or branches of establishments, wholly or mainly engaged in the maintenance and repair of essential motor vehicles

An undertaking, establishment, or branch, in this group, will be admitted to the register only if it appears to the Minister of Labour & National Service, after consultation with the Minister of Transport, to be of national importance.

Emergency Trolleybus Wiring

One of the many remarkable feats of improvisation by London Transport engineers, which has not yet received adequate acknowledgment in print, is the rapid and skilful installation of trolleybus wiring along alternative routes to minimise delays to traffic resulting from enemy action. Records hitherto considered impossible have been made by London Transport engineers and the gangs of specially trained men who are kept ready day and night to effect emergency repairs. There is no waiting for detailed instructions; the men proceed quickly to the spot and their training enables them to do immediately whatever may be necessary to restore through running of the services. Cables may be strung along trees in the street or over bushes in private gardens, or complicated engineering work may have to be undertaken. Two examples of this work may now be given. At a late hour one night four bombs fell on a road in North London, blowing down a number of bays of trolleybus wires and littering the road with debris. A gang was on the spot at midnight and as usual set to work immediately, although the "alert" was still on and bombs were still dropping. While the linesmen replaced the wires, other men cleared the road of debris so that the first trolleybus ran through next morning at the normal time, 5 a.m. This is not an isolated incident, but is typical of the speed with which such repairs are effected.

On another night a bomb fell on a road in South London and left a wide crater entirely blocking the road to vehicular traffic. Working through the darkness, with bombs still falling, the repairmen made temporary arrangements by which trolleybuses could be run to each side of the crater, whence passengers could walk around the gap. At daylight, in consultation with the police and the local authority, it was decided not to wait for the crater to be filled in, but to restore through running of the services by erecting a new system of overhead wires more than ¼ mile long so that the trolleybuses could be diverted along two nearby roads which had never had trolleybuses before. One obstacle to rapid completion of the job was the absence of any large buildings to which to attach the span-wires that support the overhead equipment, so that new poles had to be erected over the whole section. Additional difficulties were the narrowness of the roadways and six sharp corners. Trolleybuses could not pass one another at certain points, and over a portion of the route two roads had to be used and one-way working instituted. Because of the presence of service mains, all holes for the trolley poles had to be drilled by hand. A delayed-

action bomb in one of the roads also set back the work a little. Despite these difficulties the detour of 500 yd. had been planted with 43 poles, each 6 ft. deep in the ground, complete with their overhead gear, and the trolleybuses were running through within a few days of the bombing.

We have seen cases of satisfactory alternative routes being provided, to avoid bomb craters, by the installation of new curves between existing trolleybus routes so that vehicles may easily turn corners that were not intended when the London trolleybus routes were planned. In one such case we noticed that use was being made of the gradient to enable vehicles travelling downward to turn a corner by gravity; new wiring was therefore required only for up-bound vehicles, considerably simplifying the work of the overhead linemen.

Road Transport Savings Drive

The advisory committee (on which employers' organisations, the trade unions, and the National Savings Committee are represented) which has been formed to encourage war savings in the road transport industry, held a meeting at the National Savings Committee's headquarters on April 29. Sir William Brass, M.P., representing the Minister of Transport, was elected President; Mr. E. S. Shrapnell-Smith, C.B.E., Chairman; and Mr. Harold Clay, Assistant General Secretary of the Transport & General Workers' Union, Vice-Chairman. It was decided to invite the London Passenger Transport Board to appoint a representative to the committee. Plans were discussed for taking action to improve the position of war savings groups among the largest companies and undertakings in the road transport industry.

Glasgow Dock Cartage Control

A public company entitled Glasgow Dock Cartage Control Limited was registered in Edinburgh on April 1, with a capital of £3,000 in 3,000 shares of £1 each. The directors are: Isaac Barrie, transport contractor; John Cairns, transport manager; Robert D. Fyfe, General Manager of Wordie & Co. Ltd.; James B. Hastie, Managing Director of the Glasgow Hiring Company; James I. Lumsden, General Manager of Cowan & Co.; Robert L. Young, Managing Director of Young's Express Deliveries Limited. The registered office of the company is at 27, Oswald Street, Glasgow.

Creosote Fuel

Running with fuel compounded of approximately 30 per cent. of creosote and 70 per cent. of diesel oil has already been tried on passenger vehicles at Halifax, Rochdale, Glasgow, South Shields, and Sunderland, and where the quality of the creosote was good and constant the results were successful. But in some cases difficulty has been experienced in obtaining constant supplies of creosote. It is understood that the Government has asked all operators to try out a creosote-oil mixture for six months.

Gas Motorcar Regulations

The Minister of Transport has issued regulations amending the definition of motorcars in subsection (1) of Section 2 of the Road Traffic Act, 1930, to suit gas vehicles. The amended version reads: "Vehicles constructed or adapted for use for the conveyance of goods or burden of any description carrying a container or containers for holding for the purpose of their propulsion any fuel that is wholly gaseous at 60° F. under a pressure of 30 in. of mercury, or plant and materials for producing such fuel, the maximum weight unladen of which does not exceed 3½ tons. Vehicles which are constructed or adapted for use for the conveyance of goods or burden of any description other than such vehicles last above mentioned, the maximum weight unladen of which does not exceed 3 tons."

Alternative Fuels in Eire

Further activities in the application of alternative fuels in Eire have recently taken place, principal among which is the registration of a new company—Motol Limited—with a nominal capital of £10,000, to carry out preliminary investigations with alternative fuels. If the experimental results warrant, steps will be taken later to form a manufacturing company. The stated objects of the new company are to make, manufacture, refine, distil, blend, manipulate, or otherwise treat or make merchantable solid, liquid, and gaseous fuels. Included in the directorate is Mr. J. J. Drumm, of storage battery fame.

Public announcements have been made by at least one Dublin distributor that town gas installations for all types of motorcars are now available commercially at prices varying from £50 for an 8 h.p. car to £67 10s. for a 14 h.p. vehicle.

Road Construction in Egypt

The general highway construction programme in Egypt during 1940 was much below that of the preceding year, owing to the sharp reduction in expenditures on non-military public works. However, construction of highways of military importance was greatly accelerated and 606 km. (376 miles) of macadam surface-treated roads were added to the country's system. Especially noteworthy among these roads is the completion of a 227-km. (141-mile) asphalt-surfaced road across the Desert of Sinai from Ismailia to Auja on the Palestine border. This route should prove a boon to private motorists when peace is restored.

Overseas Notes

Speed Limit for Pennsylvania Turnpike

A Bill to establish a speed limit of 70 m.p.h. for passenger motorcars on the Pennsylvania turnpike is now before the Pennsylvania legislature. It proposes to limit bus speeds to 45 m.p.h. and lorry speeds to 35-50 m.p.h.

Accidents in Canada During 1940

The Board of Transport Commissioners for Canada, in its 36th annual report tabled in the Canadian House of Commons, has reported that its Operating Department in 1940 investigated 1,574 accidents which resulted in death to 313 persons and injuries to 1,754. This represented an increase of 52 casualties over the 1939 total. A total of 133 persons was killed and 485 injured in 346 level crossing accidents investigated by the department; 68 of the accidents occurred at crossings equipped with protective devices and 278 at unprotected crossings. During the year, the report said, the board heard 1,972 applications, including informal complaints, and it held 44 public sittings and issued 1,683 orders.

The New "Public Service" Fleet

Orders for 269 new buses have been placed recently by the Public Service Co-ordinated Transport and the Public Service Interstate Transportation Company (New Jersey) with General Motors Truck & Coach (a division of the Yellow Truck & Coach Manufacturing Company) and the Mack International Motor Truck Corporation. General Motors will build 229 buses, including 125 diesel electric, 68 diesel-mechanicals, and 36 petrol. Mack International will build 40, all diesel-electric. Of the diesel-electrics, 16 will be of 40-seat capacity, 40 of 32-seat and 109 of 27-seat. The 68 diesel-mechanical buses will all be of 29-seat capacity, and the 36 petrol vehicles of 23-seat capacity. During 1940 the fleet of diesel-engined buses was increased by 242 new units, and diesel engines were installed in replacement of petrol engines in 100 older type buses. At the end of 1940 there were 502 diesel-engined buses in service.

Upon completion of the new orders, the Public Service organisation will have nearly 750 diesel-powered buses, the largest fleet of its kind in the United States. The group also operates 600 all-service vehicles, the only fleet of its kind in the world. Since January 1, 1937, the companies have purchased 1,186 new buses for use on its various lines. The bodies of the buses to be built by General Motors will be of aluminium and steel, and those by Mack International will be of lightweight all-steel, combination welded and riveted, structure. The interior features of the buses will include dome lighting, roomy aisles, adjustable seats, sun visors for the conductors, baggage racks, side reading lights, and velour-upholstered seats in buses assigned to suburban transport.

Single Line Tramway Signalling

Description of a permissive system which allows of cars following one another on the single line

THE Dublin and Lucan electric tramway—or light railway—which, as recorded in the Road Transport Section of our issue for October 4 (page 354), has ceased to exist, had several single-line sections with automatic signals for regulating the traffic and preventing opposing cars from meeting between crossing loops by mistake. This may easily happen when the view is obscured by obstacles or bad weather, and although it may seldom lead to an actual accident is always productive of annoyance and delay. Many forms of signal adapted to tramway working have been produced and are common in the United States, where there is an important branch of the signalling industry occupying itself exclusively with this class of equipment, widely used on the interurban lines. The usual method of operation is by trolley contact; in other words the intermittent control system is employed and there is no track circuiting. Those lines which have track circuiting use apparatus of practically standard railway type.

Fig. 1—*Internally-illuminated signal used with Sykes's tramway signalling system*

One section of the Dublin and Lucan line was fitted with a permissive type of automatic tramway signalling designed by the W. R. Sykes Interlocking Signal Co. Ltd., of Clapham, London. The signals, located near the points at each loop, and, of course, facing towards the latter, consisted of a dome-shaped sheet metal case (Fig. 1) with an 11-in. opening through which normally nothing was visible. This constituted what was called the neutral, or line-closed, indication, and indicated that the single line was unoccupied. A bright red celluloid disc appeared when an opposing car was coming, and a green one when the section had been engaged for, or was occupied by, a receding car. Duplicate sets of lamps, on independent circuits, were lighted behind a disc directly it was in full view, providing a very distinctive colour-light indication at night, free from long range glare. This arrangement resulted in no power being consumed when no traffic was running and, since it was taken from the trolley circuit, enabled line leakage tests to be taken without difficulty. There were two line wires joining the ends of the single-line section. As already stated, the working of the signals was permissive, that is to say, cars going in the same direction might follow one another—up to a total number of 14—but no signal could be obtained for one to come the other way until all those which had entered a section had passed out of it. This was effected by the car-counting relay, seen in Fig. 2, which consisted of two independent portions moving round, always in the same direction, step by step, as traffic passed. When the two portions coincided, the signal circuits controlled by the relay were normal. The " on," or " entering " half, moved a pair of contact rings; the " off," or " leaving " half, a contact arm. The complete independence of the two parts prevented the relay being brought into a false, or half-way, condition should cars be entering and leaving the section at the same instant.

The Signalling Circuits

Fig. 3 shows the principle of the electric circuits used. The contact makers, C, D, E, F, are on the trolley wire, and establish a feed to the wires connected to them all the time a trolley wheel is passing. If a car arrives, say, at loop A from the left, the driver first notices the condition of signal S1. If this is normal, the car is driven slowly under contact-maker C, sending current through wire 1, contacts of arm *x* (on the counting relay for the opposite direction of traffic), wire 2, contact *c*, to neutral relay L1, attracting its armature and sending current over line wire X and back contact of relay L2 to the " on " counting relay magnet at loop B and attracting its armature (not shown; it forms part of the counting mechanism). When the car trolley leaves the contact maker these circuits are once more de-energised, and the return of the " on " counting magnet armature to normal under spring power rotates the contact rings, so that contact arm *x* at loop B no longer connects wires 11 and 12 but joins the rings, putting a feed on wire 15 to Z-magnet R2. This pulls the red disc into view in signal S2, blocking the line against any opposing movement. Simultaneously contact *b* is closed in the circuit from trolley contact D, and contact *a* is changed over, sending current through contact *d*, wire 16 and line wire Y, thence by the corresponding contact *a* at loop A and wire 7 to Z-magnet G1, bringing the green disc into view in signal S1. These operations take only a few seconds, the driver seeing the green disc appear almost immediately after passing under the contact maker. This change from neutral to green is a proof that the apparatus has responded correctly and that the red disc is duly showing at the other end of the single line. The car may now proceed.

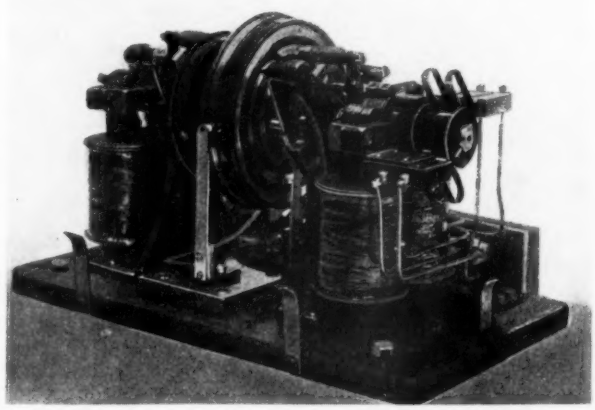


Fig. 2—Car counting relay showing the two actuating electro-magnets

Certain safety features of these circuits are to be specially noted. Directly the first impulse from A has taken effect at B, the circuit from the trolley contact E is broken, so that, should an opposing car be arriving at B just as the red disc appears there, and be unable to stop short of the contact, it can pass it and back up clear without acting on the equipment in any way whatever. The section clearing contacts D and F are in circuit only when the red disc is showing at

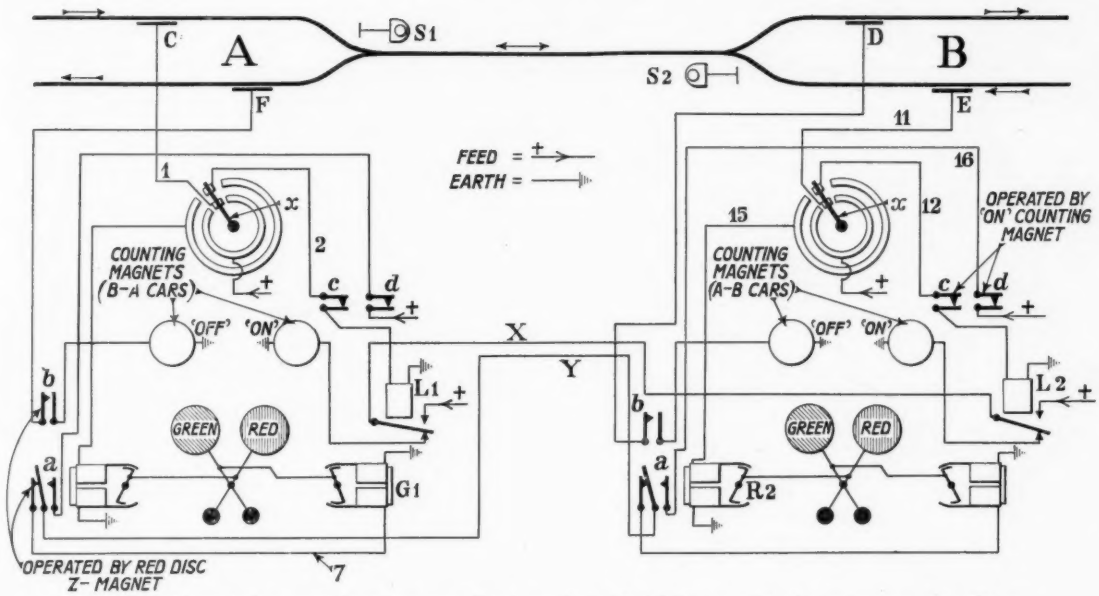


Fig. 3—Electrical connections for one block section of Sykes's permissive tramway signalling

their end of the section, thus preventing the " off " portion of a counting relay being worked unless the " on " portion has been moved from normal. Should a car arrive at a loop and find the red disc exhibited, it must of course wait until one from the opposite direction restores the signal to neutral. This may not necessarily be the first car which arrives; more than one may be in section.

The Permissive Working

If a car finds a green disc already showing when it arrives at a loop, it indicates that a receding car is still in the section ahead, and it may follow it, if the timetable and other rules allow. It is essential, however, to give the driver of such a car a positive assurance that he has duly actuated the counting relay and will therefore remain properly protected against an opposing movement while he is travelling through the section, no matter what other cars leave it in advance of him. This is the purpose of the contacts marked *d*. When the " on " counting armature at, say, B is energised in the manner already described by a car passing under trolley contact C at loop A with the green disc showing in signal S1, the feed to wires 16 and Y, and therefore to the Z-magnet G1, is interrupted, causing the green disc to fall away and reappear when, the trolley wheel leaving contact C, the " on " counting armature at B returns to normal and re-closes contact *d*, as it registers the car. This disappearance and re-appearance of the disc is the permissive signal to proceed. The red disc at the far end of the section is not released until the " off " counting half of the relay there has made as many steps as the " on " portion and the two once more coincide at normal. On the red disc falling away from view, the feed to the green disc at the other end of the section is broken and both signals once more show the neutral indication. To allow of re-setting the counting relays to normal after a breakdown, necessitating possibly some reversal of traffic and unusual movement of the cars, the relay cases have push-buttons on top, with which an inspector can rotate the two halves round to whatever position may be necessary in the circumstances.

This apparatus was developed from the absolute block tramway signal system constructed by the same maker for the electrification of the Swansea & Mumbles Railway in 1928-9 and fully described in our issue of July 19, 1929, at page 111. In that case the signals were combined with automatic trailable facing point locks at the loop points, allowing them to be taken at a higher rate of speed than would otherwise have been permissible.

Left: Open type grip car and closed trailer used on the 3-ft. 6-in. gauge Highgate Hill cable tramway, London, opened on May 29, 1884. The safety brake connection to the trailer, over the roof of the grip car, will be noted. This was the first cable tramway in Europe. The line was purchased by the London County Council, converted to electric working on standard gauge conduit track, and reopened on March 25, 1910. The steepest grade was 1 in 9. On December 10, 1939, trolleybuses replaced the trams

Trolleybus Development in Europe

Statistics compiled from various sources relating chiefly to Great Britain, Germany, Italy, and the Soviet Union

SOME statistics relating to the development of the trolleybus in Europe, chiefly in Great Britain, Germany, and Italy, were given recently in our Madrid contemporary, *Ferrocarriles y Tranvias*, to which we are indebted for certain of the following details. In 1912 the total length of route served by trolleybuses in all Great Britain and Ireland was 21 miles, but in 1930 the number of route miles had increased to 168, and thereafter the advance was progressive, as shown by the following figures :—

	1930	1931	1932	1933	1934	1935	1936	1937	1938
Route miles open ...	168	193	255	275	328	364	430	516	684
Number of trolleybuses	492	526	691	747	935	1,095	1,510	1,950	2,585
Number of passengers (millions)	127	151	184	221	254	326	445	632	864

The most marked advance in Great Britain has been in the metropolitan area. In 1933 the London Passenger Transport Board was formed and acquired all the tramway undertakings within its area, amounting to 327 route miles, and 18 miles of trolleybus route, previously converted from tramway. Conversion proceeded on an ordered "1935-1940" plan, and London has now 256 route miles of trolleybus service, leaving 102 miles of tramway to be converted. The board now owns 1,671 trolleybuses and 1,127 tramcars. This major plan of conversion of the London area was described in THE RAILWAY GAZETTE of August 16, 1940, at page 171.

In Germany, although attempts to organise a service of trolleybuses are recorded as far back as 1882, and again in 1901, it was not until the opening of the Mettman-Gruiten line in 1930 that there was any real advance, and development since then has not been rapid, as the following figures show :—

	1931	1932	1933	1934	1935	1936	1937	1938
Route miles open ...	3½	3	10½	10½	16½	16½	32	42
Car miles (thousands) ...	21	59·5	62	166·5	213	372	852	—
Passengers (thousands) ...	71	189·1	187·4	965·4	1,472	2,585·6	5,878·6	—

At the end of 1938 the services of trolleybuses in Germany were as follow :—

	Route-miles open
Mettman-Gruiten	3·6
Idar-Tiefenstein	2·8
Spandau-Staaken (Berlin)	4·2
Steglitz-Marienfelde	6·0
Oldenburg	8·5
Insterburg	4·8
Hanover	2·0
Leipzig	2·2
Zwickau	8·2

Since 1938, new lines have been opened, but only to the extent of some 30 route miles. So far there has been no movement in Germany for the general conversion of tramways to trolleybus working, and the trolleybus is regarded as a supplementary means of transit to meet specific needs.

Within the past few weeks, however, there has been some evidence of new interest in Germany in the subject of trolleybuses, possibly because of wartime rail steel shortage. The German Trolleybus Committee, composed largely of representatives of municipal transport companies and electric power unions, recently adopted standard sizes for trolleybuses in Germany, based on the number of passengers transported, for 45, 60, and 70 passengers, respectively. Special double-deck trolleybuses have been approved for Berlin and Hamburg. The city of Halle is changing two of its suburban bus services, of 2·74 and 2·64 km. in length respectively, to trolleybus working. The new lines are scheduled to be opened for service in January, 1942.

In Italy, the first trolleybus service was opened in 1903, but development was very slow; the first trolleybus service in Rome was inaugurated in 1937. As there is a ready supply of electric power available in Italy, inducements in the form of financial aid have been offered by the Government to encourage trolleybus development. The Law of 1908 provided for a yearly subvention of 600 lire a km.; this was considerably increased by a Decree-Law of 1924 and again by the Law of 1933, without any marked effect. In 1937 a new Decree-Law raised the amount of the subvention to 5,000 lire a km. The development in Italy is shown by the following figures :—

	1934	1935	1936	1937	1938
Route miles open	44·6	43·8	58·5	104·2	156·8
Car miles (thousands)	1,600	2,005	3,397	4,754	17,189
Passengers (thousands)	8,424	15,757	32,008	44,198	114,730

In 1938 the services of trolleybuses in Italy were distributed as follow :—

	Route-miles open
Turin	3·0
Cuneo	12·3
Milan	11·2
Vicenza	3·4
Venice-Mestre-Mirano-Treviso	27·1
Trieste	2·9
Leghorn	23·0
Rome	26·9
Padua	5·4
Verona	8·7
Salerno-Lamia	9·6
Florence	10·3
Brescia	7·0
Genoa	5·9

Trolleybus working costs in Italy vary between 1·36 lire and 3·64 lire per car-km. In Rome, where there are the three types of transport, buses, tramways and trolleybuses, the relative working costs in 1938 were as follow :—

Buses	3·967 lire per car-km.
Tramways	2·780 ,, ,,
Trolleybuses	2·678 ,, ,,

The annual consumption of one group of seven lines of buses in Rome was 3,650,000 litres of petrol and 55,000 kilogrammes of lubricants, and after the change-over of the same group to trolleybuses the consumption recorded was 8,460,000 kWh. and 16,000 kilogrammes of lubricants. Moreover, speeds were increased and the service improved.

Other trolleybus lines in Europe include those in Zurich, Lausanne, Winterthur, Liége, Antwerp, Lyons, Marseilles, Prague, and Copenhagen. According to the U.S.S.R. newspaper *Izvestia* of August 24, 1940, there are trolleybus services in the Soviet Union in Moscow, Leningrad, Kiev, Tbilisi Rostov-on-Don, Kharkov, and Stalino, totalling 180 miles; in 1939 they carried a total of 305,000,000 passengers.

The introduction of trolleybuses in Spain was initiated in Bilbao last year, as reported in THE RAILWAY GAZETTE of November 29, 1940, at page 563. A Law was published in Madrid on October 5, 1940, regulating the concession of new transport services operated with trolleybuses. There are some 1,300 km. (808 miles) of tramways in Spain, but many of these lines are in need of repair and may now be converted to trolleybus operation.

The Sociedad General de Tranvías Eléctricos Interurbanos de Palma de Mallorca has been authorised by the Spanish Government to substitute trolleybuses for its present tramcar service on its lines from Palma to Cas Catala, from Palma to Coliseo Balear, and for service within the environs of the city of Mallorca, according to an American Embassy report from Madrid.

THE MOGADISCIO RAILWAY

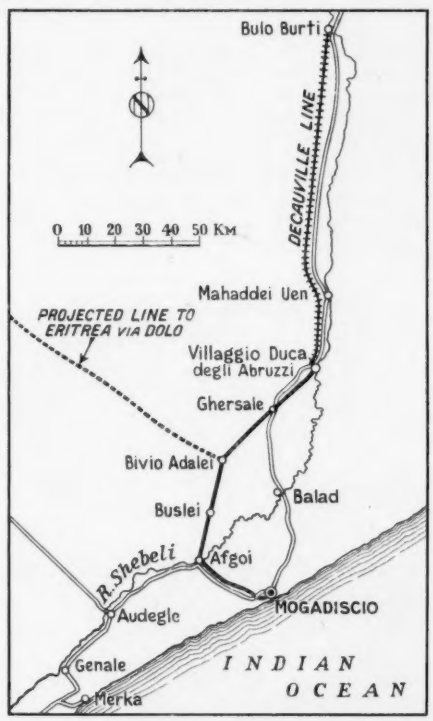
SINCE the capture on February 25 last by British Imperial Forces of Mogadiscio, the capital of Italian Somaliland, control of the only railway in the colony has been in British hands. Originally this line, which is built to the Italian colonial gauge of 0·95 metres (3 ft. 1⅜ in.) extended only from the Indian Ocean port of Mogadiscio to Bivio Adalei, 66 km. (41 miles), reaching that point *via* Afgoi, 30 km. (18½ miles) on the Webi Shebeli. This railway, which was regarded as part of the main line to Eritrea, was opened to public traffic in the middle of 1936 (as recorded in THE RAILWAY GAZETTE of July 17, 1936).

It was then announced that an extension was being built to Villaggio Duca degli Abruzzi, a town of some 9,000 inhabitants and the centre of the principal agricultural colonisation centre in the colony, that of the Associata Africada Italo-Somalia (this town was occupied by British troops on March 2, 1941). It would seem that by July, 1936, this extension had already been completed for military purposes by the army of General Graziani, for, according to a statement issued by the Ministry of Information (Military Affairs), the advance by the Italian Southern Army in April, 1936, used the railway as far as Villaggio Duca degli Abruzzi and built a further line thence to Bulo Burti.

The railway, as opened to public traffic, has never extended beyond Villaggio Duca degli Abruzzi, a distance of 113 km. (70 miles), and this is also the railhead of the 0·95 metre gauge line. Except for the initial climb out of the coastal region, the location is easy, with but few severe grades or curves.

From Villaggio Duca degli Abruzzi a 0·60 metre (2 ft.) decauville line, built for military purposes during the Abyssinian campaign runs 130 km. (81 miles) to Bulo Burti.

The public railway in 1937-38 carried 226,604 passengers and 29,668 tons of goods, but in 1938-39 the traffic had declined to 194,230 passengers and 18,548 tons of goods, probably by reason of the considerable development of roads and road traffic. The latest available timetable, that dated October 1, 1939, showed a service between Mogadiscio and Villaggio Duca degli Abruzzi consisting of one mixed train daily in each direction, taking approximately 3½ hours, two mixed trains daily each way between Mogadiscio and Afgoi, taking between 1 and 1¼ hours. As the accompanying sketch map shows, the motor road takes a more direct route between the terminal points of the railway.



Railways in Italian Somaliland

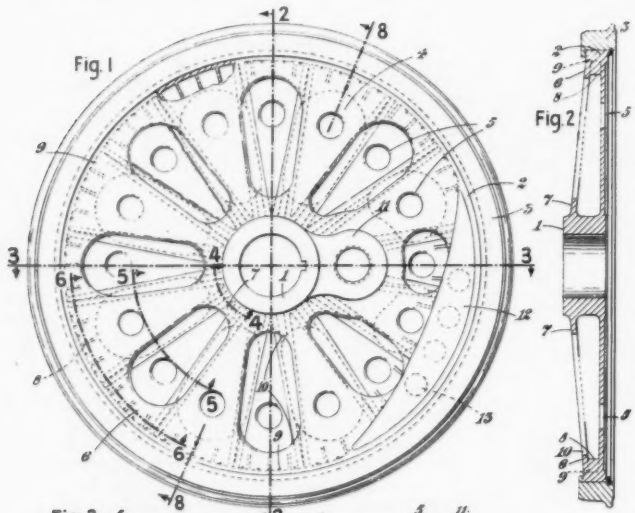
A mineral train approaching Singapore. Malaya is served by over 1,000 miles of railway, which constitute an important factor in its commercial prosperity

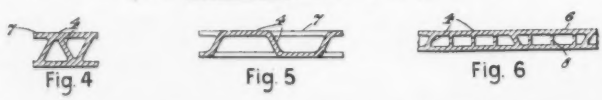
Photograph by courtesy of [*Malayan Information Agency*]

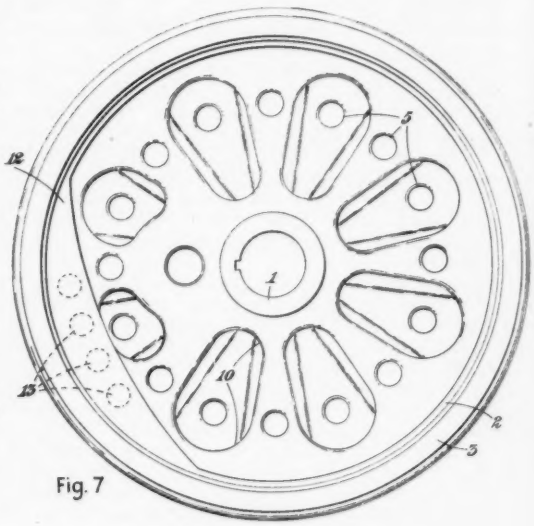
DISC WHEEL CENTRES FOR LOCOMOTIVES

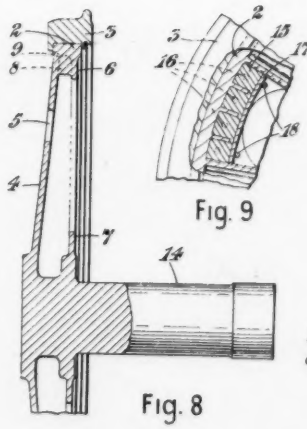
Abstract of patent specification covering type of wheel used for Southern Railway Pacific engines. Provision is made for casting portions of crank-axle integrally with wheel centres

A GOOD deal of interest having been expressed as to the form of construction adopted in the design and manufacture of the cast-steel disc wheel centres of the new Southern Railway Pacific locomotives, we reproduce the drawings attached to the patent specification covering the invention in accordance with which the B.F.B. wheel centres, as they are termed, of the Southern Railway locomotives are planned. The drawings show the construction in principle and in two different forms. The patent specification bears the names of Thomas Beaumont and Joseph Fenwick Bridge, both of Atlas Works, Sheffield, and the following is an abstract from the complete specification, the acceptance of which is dated September 19, 1940.

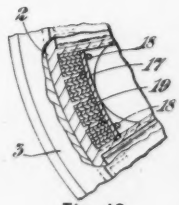








Section showing portion of crank axle cast solid with wheel centre



The invention covers improvements in or relating to cast disc wheels, comprising a hub and a rim connected by a substantially continuous annular corrugated web, the corrugations of the web having their length extending in the radial direction of the wheel. The driving wheel is cast with a hub *1* for the reception of the axle and a rim *2* to which a tyre *3* is secured in the usual way. The hub and rim are connected by an annular corrugated web *4*, the shape of the corrugations, which are flat topped, being best seen in Figs. 4 to 6. Holes *5* are provided in the corrugations to lighten the wheel and facilitate access to parts of the locomotive on the inner side of the wheel.

The wheel is provided with secondary strengthening webs, as shown at *6* and *7*. The secondary webs are provided at each end of the concave side of each corrugation and they connect the tops of the adjacent corrugations, the webs at the periphery of the wheel being also connected to the rim, and those at the centre to the hub. Stiffening ribs *8* are also provided connecting the two webs *4* and *6* at the periphery of the wheel. The webs *4* and *6* form pockets at the periphery of the wheel, the pockets being subdivided into smaller pockets by the ribs *8*. In order to prevent the accumulation of water in these pockets, holes *9* are formed leading from the pockets to the face of the wheel. Similar pockets are also arranged at the centre of the wheel by the webs *4* and *7*, but any accumulation of water in these pockets will fall out during rotation of the wheel and drain holes are unnecessary. The webs *6* and *7* lie in the planes of the tops of the corrugations and they lead into the corrugations by smooth curves as shown at *10*.

The wheel is, in this example, cast with a crank-pin boss *11* and a balance weight *12* at suitable relative annular positions. The balance weight *12* is provided with holes or recesses *13* in order that adjustment of the balance may be effected by fitting or casting lead weights into the holes. The lead weights are held in position by steel discs welded over the holes after the balancing has been completed.

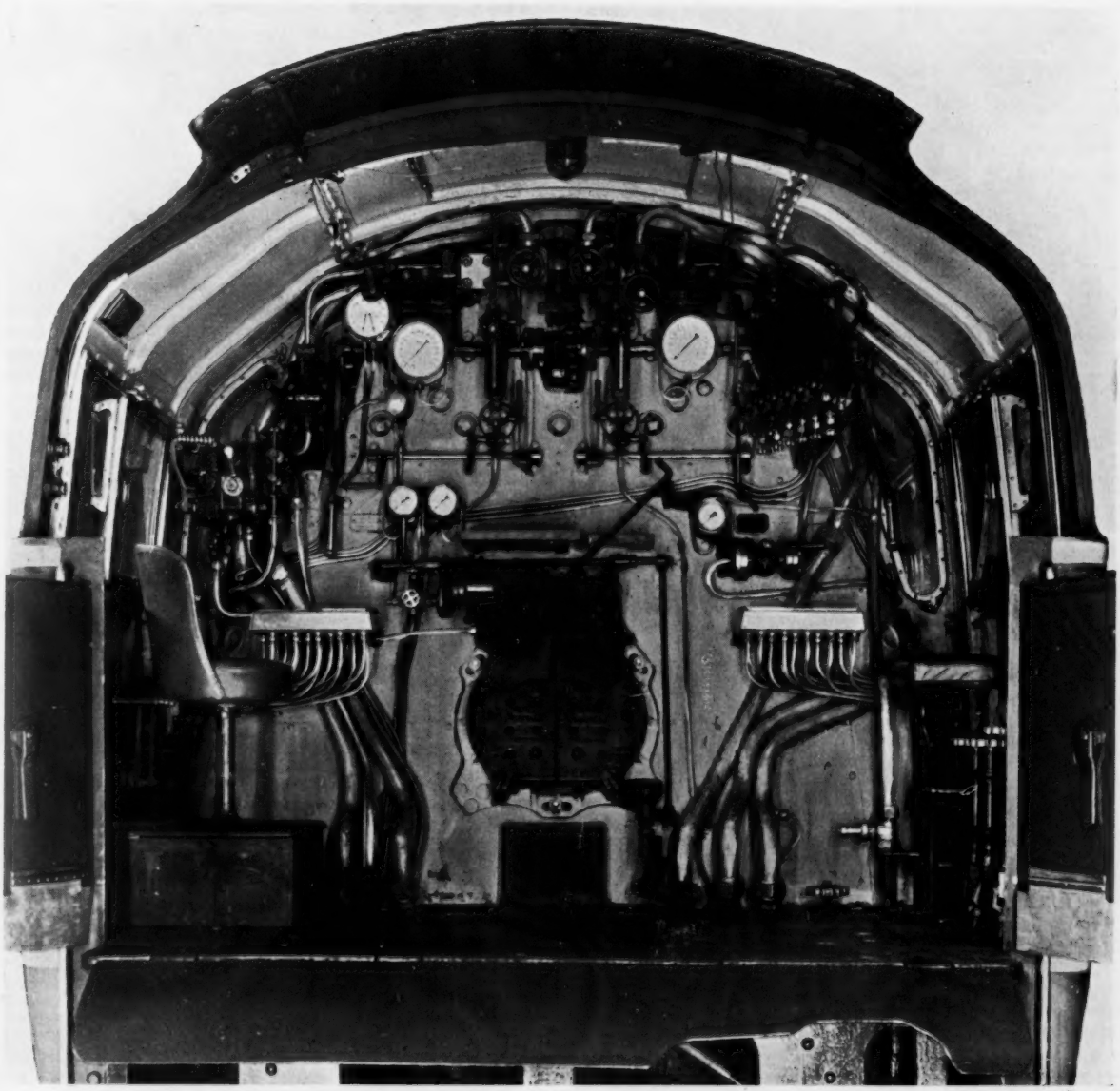
A Modified Form of Wheel

Fig. 8 shows a modified form of the wheel in which a portion *14* of the axle is cast integrally with the wheel. This

wheel is intended for use in conjunction with a built-up single-throw crankshaft, and by casting the part *14* integrally with the wheel the necessity for boring the hub of the wheel and for pressing the wheel into position on the axle is avoided. Figs. 9 and 10 show further modifications in the form of the wheel in which the integral balance weight is omitted and the balancing of the wheel is effected by weights inserted into the pockets between the two webs *4* and *6*. In the modification shown in Fig. 9 the weights *15* are cast in position and consist of lead or a lead alloy of low melting point. Holes *16* are drilled in the webs *4* and *6* before the weights are cast, so that the metal runs into the holes and forms keys tending to retain the weights in position. To provide additional security against displacement of the weights mild steel plates *17* may be provided, the plates being held in position by bolts or rivets *18* passing through the two webs. In the modification shown in Fig. 10, the balance weights consist of plates *19*, preferably of lead or other heavy metal, fitted into the pockets and held in position by a steel plate *17* and bolts or rivets *18*.

It is to be understood that, although the invention has been described with reference to driving or driven wheels for locomotives, it may also be applied to non-driving wheels such as leading and trailing wheels and it may also be applied to the wheels of vehicles other than locomotives. Again, although the wheel described above is intended primarily for use with a steam locomotive, the invention may be applied to the wheels of locomotives driven by means.

Footplate of new Southern Railway "Merchant Navy" class engines



The spacious cab and conveniently arranged control and other fittings are clearly shown in the above illustration. This new Southern Railway Pacific type locomotive was described in "The Railway Gazette" of March 14

British Railways and the War—69

Right: Temporary wartime railway bridge over the Suez canal at Kantara which was built during the last war by the Egyptian State Railways to accommodate the additional traffic from the Egyptian side of the canal after May 1, 1918, consisting of large quantities of supplies for the troops in Palestine. The large swing span in the middle, with a 42-metre (138 ft.) opening, is shown open for sea traffic. This bridge was demolished after the last war (see page 559)

Left: One of the three G.W.R. fire-fighting trains. They are painted scarlet and prominently lettered "Fire Train." Each train consists of a special pump van and a passenger vehicle affording accommodation for a crew of eight men

Right: Unloading by jib crane one of the trailer fire pumps from a G.W.R. fire-fighting train. The equipment of a train includes two light petrol trailer-type pumps housed in a special van allowing the pumps to be handled either through double end doors or through centre doors by means of a swinging jib

RAILWAY NEWS SECTION

PERSONAL

MINISTRY OF WAR TRANSPORT

An Order in Council was made on May 9 giving legal effect to the amalgamation of the Ministries of Shipping and Transport under the new title of the Ministry of War Transport. Mr. F. J. Leathers, whose appointment as Minister of Shipping and Minister of Transport was announced the previous week, becomes accordingly Minister of War Transport.

Colonel J. J. Llewellin, C.B.E., M.C., M.P., and Sir Arthur Salter, K.C.B., M.P., are being appointed Joint Parliamentary Secretaries to the Ministry of War Transport. As already announced, Colonel Llewellin will represent the Minister in the House of Commons, Sir Arthur Salter being at present on an official mission in the U.S.A. in connection with shipping matters.

Sir Cyril Hurcomb, K.C.B., K.B.E., hitherto Director-General of the Ministry of Shipping, has been appointed Director-General of the new Ministry.

The office of Secretary to the Ministry of Transport lapses with the creation of the new Ministry, and Sir Leonard Browett, K.C.B., C.B.E., who held this post, has been attached temporarily to the Treasury for general service; at the request of Mr. Leathers he will be available for the time being to assist as may be required in the new Ministry.

Mr. L. H. Edmunds, K.C., who died at Hillingdon, near Uxbridge, on April 27, had had a large junior practice in patent cases, and was the author of several well-known works on that branch of the law. He retired from practice many years ago.

Captain the Rt. Hon. David Euan Wallace, P.C., M.C., M.P., has left estate valued at £582,742. Captain Wallace, whose death we recorded in our February 14 issue, was Minister of Transport from April, 1939, until May, 1940.

Mr. Guadalupe Estrada has been appointed General Treasurer of the National Railways of Mexico, Mexico City.

An Order in Council under the provision of the Chartered & Other Bodies (Temporary Provisions) Act, 1939, has been made extending the terms of office of the elected members of the Port of London Authority until April 1, 1943. The new Order is cited as the Port of London Authority (Extension of Term of Office) Order, 1941.

Mr. J. D. White, Assistant General Manager (Operating), South African Railways & Harbours, who, as recorded in our December 27 issue, has been appointed Deputy General Manager was born in Dundee in 1884 and went to South Africa with the Black Watch Regiment in 1901. At the conclusion of the Boer War in 1902, he was given an appointment with the Natal Government Railways and remained in Natal after Union as a member of the staff of the South African Railways & Harbours. During his service in Natal he occupied positions in various departments and gained experience of all forms of operating work, particularly in connection with military movements. In 1913, Mr. White was commended by General Tim Lukin for his services during the Indian strike in Natal. He earned further praise from the General Officer Commanding the Imperial troops for his work in the embarkation and disembarkation of troops during the South African War. During the 1914-1919 war he was again responsible for troop movements. It will be appreciated, therefore, that his knowledge and experience are of particular value at the present time. He was specially selected to investigate the possibilities of the use of motorbuses for feeder services, etc. In 1925 he was appointed Road Transport Officer for the Union of South Africa and in 1927 was appointed Manager, Road Motor Services. During this period he was responsible for the development of road motor feeder services throughout the Union, with the result that they were increased by more than 10,000 miles and the Road Transportation Act was passed. In 1931 he acted as System Manager at Johannesburg, and in 1932 was promoted to a similar position at Port Elizabeth. In 1936 he became System Manager at Durban and in 1937 was transferred to Johannesburg as Chief Traffic Manager. Last November Mr. White was appointed to the newly-created position of Assistant General Manager (Operating), and in December was appointed Deputy General Manager.

Mr. J. D. White
Appointed Deputy General Manager, South African Railways & Harbours

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Major Roland Hobhouse Thornton, M.C., has been elected a Director of the Mersey Docks & Harbour Board to fill the vacancy caused by the death of Sir Richard Holt which we recorded in our April 4 issue. Major Thornton is a Manager of Alfred Holt & Co. and a Director of the Glen Line Limited.

Mr. John Barr, C.B.E., a member of the Council of the Federation of British Industries, and for some years a Director of Vickers Limited, has left £26,062.

Mr. Evelyn Henry Raynward Trenow, whose death we recorded in our December 27 issue, has left estate valued at £33,014. Mr Trenow was formerly Managing Director of the Bath Electric Tramways Limited, and of the Bath Tramways & Motor Co. Ltd. He remained on the board of these companies when control was taken over by the Bristol Tramways & Carriage Co. Ltd., and also joined the board of the latter company.

C.P.R. DIRECTORS

At the annual meeting of the shareholders of the Canadian Pacific Railway held in Montreal on May 7, the retiring directors, Sir Edward Beatty, Mr. Aime Geoffrion, Mr. G. Blair Gordon, and the Rt. Hon. Arthur B. Purvis, P.C., were re-elected. At the meeting of

directors after the annual meeting of shareholders, Sir Edward Beatty was re-elected Chairman and President; Mr. D. C. Coleman, Vice-President; and Sir Edward Beatty, Mr. D. C. Coleman, Sir Herbert S. Holt, Mr. W. N. Tilley, K.C., Mr. Ross H. McMaster, and the Rt. Hon. Arthur B. Purvis, P.C., members of executive committee for the ensuing year. It was announced by Mr. Coleman that Sir Edward Beatty, who has been working at very high pressure for a considerable period, was advised several weeks ago to take a complete rest. We now learn that Sir Edward is recovering his strength rapidly and is assured that he will soon be fully restored to his usual good health.

ENGINEERING ADVISORY COMMITTEE

The Lord President of the Council, with the approval of the Prime Minister, has appointed an Engineering Advisory Committee under the chairmanship of Lord Hankey to advise the Government, and we recorded at page 534 last week the particular engineering questions connected with the war effort upon which the advice of this committee is being sought. The full composition of the committee is as follows: Right Hon. Lord Hankey, Chancellor of the Duchy of Lancaster (Chairman); Right Hon. Viscount Falmouth (Vice-Chairman); and Sir Henry Tizard; and the following members who have been selected after consultation with the Presidents of the Institutions of Civil, Mechanical, and Electrical Engineers, Mr. J. R. Beard, Dr. A. P. M. Fleming, Messrs. W. T. Halcrow and B. W. Holman, Dr. C. C. Paterson, and Messrs. H. R. Ricardo, and A. Robertson. Representatives of the Government research establishments and production departments will be associated with the committee as required from time to time.

Mr. George S. Kellow, Assistant Goods Manager (Scottish Area), Glasgow, L.N.E.R., who, as recorded in our May 2 issue, has retired, comes from a family which has been associated with Scottish railways since 1848. Mr. Kellow began his railway career as an apprentice clerk at Rawyards in 1889 when he was indentured to the North British Railway Company. After acquiring a knowledge of goods, mineral, and passenger working at various stations in the Monkland District, Mr. Kellow was drafted to the District Traffic Superintendent's Office and later to the Office of the Plant Superintendent. In 1895 he became personal clerk to the head of the Canvassing and General Section in the Goods Manager's Office, subsequently filling various positions and gaining a direct acquaintance with all branches of the work coming under the jurisdiction of the Goods Manager. From 1907 to 1912 Mr. Kellow was allotted special duties dealing with the detention of wagons and the improvement of transits. In 1913 he was made head of a new section to inquire into and improve goods station methods and organisation, and take such steps as necessary to ensure that the commercial work was efficiently undertaken. On the railways being taken over by the Government in 1914 he became responsible under the Goods Manager for all matters affecting Government traffics. When the railways were handed back he dealt with matters which the change in conditions arising from railway grouping brought about. In 1923 he was appointed chief of the combined General and Statistical Sections of the Goods Manager's Office. In 1932 he became Assistant to the Goods Manager (Scottish Area); his title was altered in 1938 to Assistant Goods Manager (Scottish Area). Mr. Kellow's wide and varied experience during his 52 years of railway service brought him in contact with a large circle of traders in Scotland and railwaymen both north and south of the border. For some years he has represented the Goods Manager on various sub-committees and from time to time he has acted as Secretary to the L.N.E.R. Area Goods Managers Conference.

Mr. George S. Kellow

Assistant Goods Manager (Scottish Area), Glasgow, L.N.E.R., 1938-1941

The death in New York on May 8 is recorded of Mr. Charles Delavan Wetmore, the architect of the Grand Central terminal station, New York. Mr. Wetmore was 74 years of age.

We regret to record the death through injuries received in an air raid of Mr. W. Shuttleworth, Assistant Manager of the Cheshire Lines Committee.

Mr. C. P. Whitcombe, Chairman of the West of India Portuguese Guaranteed Railway, who died on February 1, has left estate valued at £26,053.

We regret to record the death on May 7 of Mr. Alexander Muirden, for some years a Resident Engineer on the Bengal & North Western Railway.

L.M.S.R. STAFF APPOINTMENTS

The following appointments have been approved by the directors:—

Mr. R. C. Bond, Acting Mechanical & Electrical Engineer, Glasgow, to be Works Superintendent, Crewe (Loco.), *vice* Mr. F. A. Lemon, retired.

Mr. G. S. Bellamy, Works Superintendent, Derby (Loco.), to be Acting Mechanical & Electrical Engineer, Glasgow.

Mr. J. Rankin, Assistant Works Superintendent, Derby (Loco.), to be Works Superintendent, Derby (Loco.).

Mr. P. Richardson, Agent for Accounts, London (Camden), to be Assistant District Goods Manager (Operating), Broad Street.

Mr. E. G. Garstang, District Goods Manager, Bolton, to be District Goods Manager, Manchester, *vice* Mr. H. G. Humphreys, retired.

Mr. H. Tandy, Goods Agent, St. Pancras & Somers Town, to be District Goods Manager, Bolton.

Mr. A. B. Roberts, Goods Agent, Albion, to be Goods Agent, Spon Lane, *vice* Mr. B. S. Brown, retired.

Mr. M. J. Theobald, Goods Agent, Bletchley, to be Goods Agent, Albion.

Mr. J. H. Fraser, Goods & Livestock Agent, Stanley, to be Goods Agent, Sandon Dock & North Docks, *vice* Mr. T. Elsworthy, retired.

Mr. J. T. Hemmings, District Permanent Way Inspector, Chinley, to be Chief Permanent Way Inspector, Crewe, *vice* Mr. A. H. Evans, retired.

INDIAN RAILWAY STAFF CHANGES

Mr. A. C. Griffin, O.B.E., has been confirmed as General Manager of the N.W.R., with effect from February 10. This confirms the appointment we recorded in our March 29, 1940, issue. A portrait and biographical note were published in our April 5, 1940, issue at page 515.

Mr. B. C. L. Bean, O.B.E., V.D., Divisional Superintendent, N.W.R., has been granted 4½ months' leave preparatory to retirement as from April 19.

Mr. W. B. Burford has been appointed to officiate as Deputy General Manager (Works), G.I.P.R., as from February 11.

Mr. S. Barber has been appointed to officiate as Deputy Transportation Superintendent (Power), G.I.P.R., as from February 16.

Dr. R. MacLean, D.Sc. Edinburgh, Chief Engineer, B.B. & C.I.R., has been granted leave preparatory to retirement as from February 17.

Subject to the approval of the Railway Board, Mr. W. R. Maunder, Deputy General Manager, has been appointed to act as Chief Engineer *vice* Dr. L. MacLean.

We regret to record the death at Dumfries on April 30, at the age of 85, of Mr. Glegge Thomas, who retired on March 31, 1922, after 44 years of railway service, from the position of Secretary and Rating and Estate Agent of the Cheshire Lines Committee.

TRANSPORT SERVICES AND THE WAR—90

Heavy London air raid—Evacuation from Plymouth—Rules for London tube shelterers—The Near East and the Suez Canal—Defence activities in the U.S.A.

A heavy and prolonged air raid on London on the night of May 10-11 resulted in some dislocation of the local transport services in the Metropolitan area. Improvised transport was immediately organised, and by Monday morning many essential services had been restored. Considerable use was made of the flying squad of London Transport buses, running along unaccustomed routes to assist the suburban railways. On the Sunday morning it was announced that no fewer than 33 enemy bombers had been destroyed during the course of the night, a record so far in the night raids on this country.

Plymouth Evacuation Area

After the heavy air raid on Plymouth on the night of April 28-29 (the fourth in eight nights), a representative of the Ministry of Health met the Plymouth Corporation Emergency Committee and agreed that a large part of Plymouth should be declared an evacuation area and that about 10,000 school children should be moved as quickly as possible. The Ministry of Health issued the following statement on the declaration of an evacuation area in Plymouth: "The question was considered last summer and the Ministry did not feel that the step ought then to be taken in view of the heavy pressure on reception areas. But the Minister himself visited Plymouth on March 24, shortly after the first of the recent air attacks on the city. The question was then discussed on the spot and it was agreed that it was not necessary or desirable to take action. The authorities responsible locally have now requested that Plymouth should be made an evacuation area, and arrangements are being made to remove school children from the areas affected as quickly as possible."

Lighter Parcels by Passenger Train

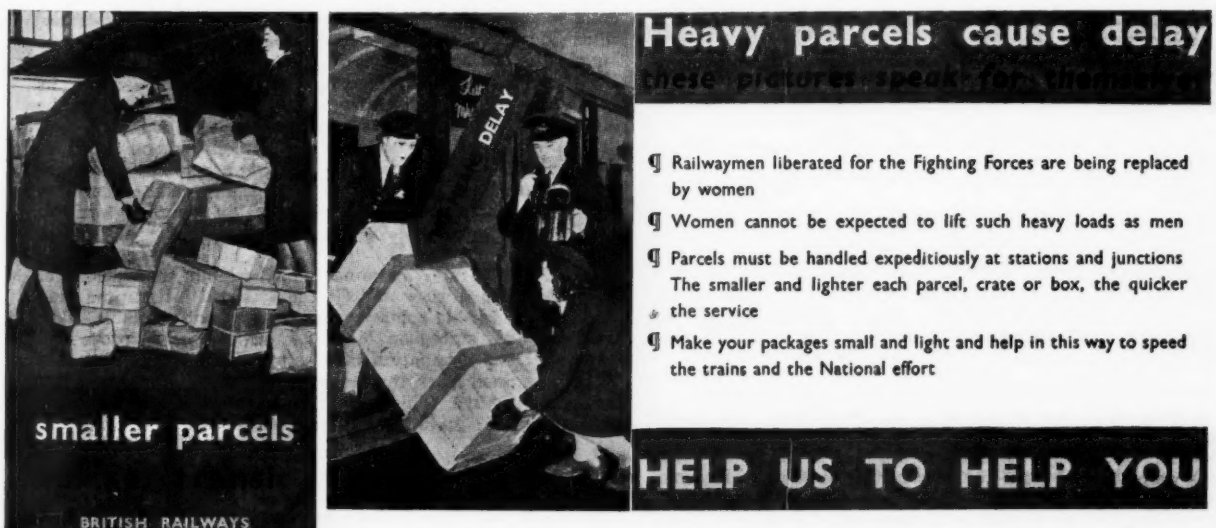
To assist expeditious handling of parcels by the women who have replaced porters now on active service, the Advertising Manager of the L.N.E.R. has just produced on behalf of the Railway Executive Publicity Committee a leaflet urging traders to use smaller packages when sending them by passenger train. Below we reproduce the cover and the centre spread of this leaflet. Even with urgent machinery, perishable foodstuffs, and so forth, the British main-line railways request that every effort shall be made to keep the weight of an individual package below 112 lb.

Payment of Demurrage Charges

Negotiations with the object of effecting a settlement of questions arising from the demurrage regulations as they affect the merchant coal trade have been concluded satisfactorily. Coal distributors complained that it was impossible in practice to comply with the regulations, and that they could not avoid incurring heavy charges. Agreement has now been reached both on the future of the Railways (Demurrage Charges) Order, 1939, as it affects the distributive coal trade, and on the method of dealing with outstanding charges. The parties to the negotiations have been the Ministry of Transport, the Mines Department, the Railway Executive Committee, the Chamber of Coal Traders, the Co-operative Union, and the House Coal Distribution (Emergency) Scheme. The discussions have been presided over by Sir Leonard Browett, Permanent Secretary to the Ministry of Transport, and the case for the distributive coal trade has been conducted by Mr. F. W. Cooper, Past-President of the Coal Merchants' Federation. Details of the new procedure have been worked out by a joint committee of the mineral managers of the main-line railway companies and the trade under the chairmanship of Mr. C. N. Mansfield, of the L.M.S.R.

The Minister of Transport has received from representatives of the distributive trade an undertaking that they will accept the principle of the demurrage regulations, and will withdraw any contention based on a challenge of that principle, and he hopes to secure the wholehearted co-operation of the trade in securing the quickest possible turnround of wagons. The Railways (Demurrage Charges) Order, 1939, will remain in force without amendment, and the new arrangement will operate as an agreed method of administering the Order. It has been agreed that payment of arrears should be made of 33⅓ per cent. of the accounts as rendered for the period from March 1, 1940, to April 30, 1941, in respect of all wagons of coal, coke, and patent fuel (whether for industrial, public-utility, or household use) delivered to registered coal merchants.

The arrangement for the future operates as from May 1, 1941. The day after the day of arrival of a wagon will be


smaller parcels
BRITISH RAILWAYS
DELAY
Heavy parcels cause delay
these pictures speak for themselves
¶ Railwaymen liberated for the Fighting Forces are being replaced by women
¶ Women cannot be expected to lift such heavy loads as men
¶ Parcels must be handled expeditiously at stations and junctions The smaller and lighter each parcel, crate or box, the quicker the service
¶ Make your packages small and light and help in this way to speed the trains and the National effort
HELP US TO HELP YOU

Leaflet urging traders to use lighter passenger-train packages

XUM

deemed to be the day of receipt by the trader of notice of arrival. Thus, in the case of a wagon arriving any time on Monday, Tuesday will be regarded as the day of receipt of notice of arrival, Wednesday as the free day, and Thursday as the first day for which demurrage will be payable. The arrangements will apply only to wagons of coal, coke, and patent fuel delivered to registered merchants at stations and depots for their domestic trade. It has been agreed to make it incumbent on the merchant to declare currently to the railway company any wagons of fuel supplied in bulk for industrial purposes. The arrangement will not apply to such traffic.

In December, 1939, the Minister of Transport assured the House of Commons that the regulations would be administered with due regard to any genuine difficulties which traders and agriculturalists might have in giving strict compliance to the Order, and the revised procedure has been agreed upon in the light of this undertaking. The railway companies will exclude from the accounts any items where they are satisfied that the charges should not be raised. Under this heading are included the failure of a firm's working arrangements through causes beyond its control and the arrival of wagons in larger numbers than can be dealt with by the trader within the free period owing to transit irregularities. The Minister of Transport has agreed to the setting up of a joint standing committee of the Railway Executive Committee of the trade to facilitate the operation of the new arrangement.

London Tube Shelter Changes

Since May 1 shelterers are not admitted to London underground stations until 6.30 p.m. unless an Alert has sounded between 4 and 6.30 p.m. The number of shelterers, which, as has previously been explained in these columns, fluctuates considerably and is related directly to German air activity over London, and also to the phases of the moon, is now running at an average of about 70,000 a night. Before the heavy German attacks on London on the nights of April 16/17 and April 19/20, the number of shelterers was averaging about 60,000 a night. Immediately after these raids it rose sharply to about 87,000, but has since declined. This sharp increase in the number of shelterers necessitated a call being made upon iron rations which are held in reserve against such an eventuality, but otherwise the sudden influx caused no disturbance to the arrangements which have worked consistently well. The number of bunks installed at 60 stations is 7,600, giving sleeping accommodation for 22,800 persons. This number has been decided upon as sufficient and it is not intended to vary it.

Shelterers in London tube stations were given a copy of a new set of rules last Saturday night (May 10). It was pointed out that underground stations were not built for shelters, but are part of a railway system, and shelterers were asked to keep the railway working properly by observing the following rules :—

1. When you arrive at a station, have your yellow or blue ticket ready for the collector.
2. The evening rush hour goes on till 6.30 p.m. Wait till it is over before coming to shelter.
3. The morning rush starts at 7 a.m. Leave before then if you can. Keep behind the 4-ft. line by 6.15 a.m.
4. Don't stand about in groups, particularly upon platforms.
5. Keep away from the platform edge. There have been several accidents (one fatal) caused by shelterers coming too near the trains.
6. Keep your children under control. Your shelter tickets were issued to you on this condition. Never allow the children to play on the escalators or in lifts and trains.
7. Stations cannot be kept clean for passengers if you leave your litter about. Litter thrown on the track may hold up the trains. Put your litter in the special baskets provided for it ; or, better still, take it with you out of the station.
8. Your co-operation with railway officials and wardens will help to keep the railway working in a proper manner.

On the back of the leaflet is printed a "Cockney Crossword" compiled by Morley Adams. The solution will appear upon the shelterer's notice board a fortnight after the distribution of the leaflet.

Films of London Transport in Wartime

A programme consisting of a representative selection of recent films in which London Transport co-operated by providing facilities was given in London on May 10. The films were shown by the courtesy of the Ministry of Information, the British Council, Crown Films (formerly the G.P.O. Film Unit), British Paramount News, Pathé Pictures, Strand Films, and Spectator Films, and included "Christmas Under Fire," which was shown in many British cinemas at Christmastime last year, and which was designed primarily for sending to the United States. Others included "The Big City," "City Bound," and two news reels, which depicted such activities of London Transport as the training of women conductors and the provision of food for tube station shelterers.

Cancellation of G.W.R. Passenger Train Services

To facilitate further the working of coal trains from South Wales, the Great Western Railway has found it necessary to curtail certain passenger train services on and from Monday, April 28. These include three trains on the London—Swindon—South Wales service; and various alterations to the services on the Bristol—Cardiff and Gloucester—Newport—Cardiff lines. These alterations are supplementary to the timetables brought into operation on May 5.

Jugoslavia

Jugoslav territory appears to be in process of dismemberment, but no announcements have been made so far of precise boundaries of territories annexed by her neighbours. A Rome decree of May 3 announced that Italy had annexed Ljubljana, the capital of Slovenia. Railway communications between Slovenia and Trieste were resumed on April 26, according to an announcement by the Civil Commissioner for Italian-occupied Jugoslavia. Motor traffic in both directions between Trieste and Ljubljana and between Gorizia and Ljubljana was restored on April 27.

Hungary has occupied part of Croatia in the north-east of Jugoslavia but so far has not issued any statement concerning transport arrangements. A pro-German party has set up a new independent republic in Croatia but has complained of the acquisitions of Italy and Hungary as being contrary to a German promise that Croatia should remain intact. According to a Zagreb report to the Stefani Agency, however, an agreement was signed on May 13 between Germany and Croatia defining the new frontiers between the two States.

Greece

No information is yet available about the internal transport of the Greek mainland since the German occupation. Railway services were drastically curtailed by evacuation and military movements from the outset of the German invasion on April 6. The enemy reached Salonika on April 8 and thus severed Eastern Macedonia and Thrace from the rest of Greece. German Forces reached the sea at Dedeagatch (Alexandroupolis) on April 9. Other Germans, advancing from Jugoslavia through the Monastir gap, appeared south of Florina on April 9 also, and the Greek and British Imperial Forces undertook a necessary withdrawal southward, when it became obvious that the Greek divisions in Albania (to the west of the British line) had suffered such severe casualties as to have almost ceased to exist as a fighting force. On April 14 an Australian Brigade was ordered to the railhead at Kalambaka to cover the British Imperial left flank of withdrawal when it was obvious that the Greek army could fight no longer, the Greek Government on April 21 requested that the U.K. and Empire Contingent which had been sent to its help should be withdrawn from Greece, and this was perforce undertaken. The Germans entered Athens on April 27.

The British Postmaster-General announced on April 30 that postal, money order, and telegraph services to Greece (other than Crete) had been suspended, and on the same day the Greek mainland was declared enemy-occupied territory for the purposes of the Trading with the Enemy Act and of the blockade.

On May 8 it was announced in Istanbul that passenger traffic between Turkey and Greece was still interrupted, and that mail and cable communications were not available. The German radio stated on May 12 that Bulgarian troops had completed the occupation of Western Thrace, territory that Bulgaria gained after the second Balkan war (1913) and lost to Greece in 1919. This includes the port of Dedeagatch and a section of the main railway between Salonika and Istanbul.

The Suez Canal

In the time of the Pharaohs a canal linking the Red Sea with the delta of the Nile was built, and traces of it still remain. It was cleared of sand and re-opened by the Persians when they were the rulers of Egypt about 400 B.C., but once more was allowed to silt up. The Moslem conquerors of

Egypt again restored this canal, but by the time the present Suez canal was projected the ancient canal had virtually disappeared. Ferdinand de Lesseps is stated to have occupied five years of intensive study in preparing the scheme and then he succeeded in enlisting the sympathy of the Khedive. The Suez Canal Company (Compagnie Universelle du Canal Maritime de Suez) was established by a Decree of January 5, 1856, of the Viceroy of Egypt and confirmed by Firman of March 19, 1866, of the Sultan of Turkey. The concession granted to de Lesseps was for 99 years from the date of opening, at the expiration of which period the canal reverts to the Egyptian Government. The statutes of the company are framed in accordance with the French Companies Law.

Construction work was begun at Port Said on April 25, 1859, and after two years of heavy work barely one-fiftieth part of the channel had been cut and the authorised funds of £8,000,000 were found to be insufficient. Both financial and physical conditions were eventually overcome and the last barrier was pierced on August 15, 1869. The cost at opening proved to be some £17,000,000 for the 169 km. (105 miles) of canal; about a quarter of the length is through five lakes. The Suez canal was opened to traffic by the Empress Eugenie on November 17, 1869 (at which date the 99 years of the concession began). Until 1886 no ships were allowed to use the canal at night, but after that year night traffic was permitted provided every vessel was equipped with a lamp capable of throwing a beam for a distance of 1,300 yd. Vessels not so fitted can hire such lamps at each end of the canal. No sailing vessel is allowed to pass through at night. The canal is signalled on the block system and the owning company controls the entrance and departure of all vessels and settles the order of procedure. In 1875, mainly through the instrumentality of Lord Beaconsfield, the British Government purchased from the Khedive of Egypt a block of shares amounting to about 44 per cent. of the total. The remainder of the shares is held principally in France. By international agreement the canal is open to all the vessels both in peacetime and wartime.

During the last war Turkish Forces attempted to cross the canal at Tunssoum on the morning of February 3, 1915, in steel boats built in Constantinople (now Istanbul) and conveyed across the desert on wheels. Between 20 and 30 of them were captured or sunk and only one succeeded in reaching the west bank; this is now preserved in the Victoria Gardens, Bombay.

There are no permanent bridges across the canal, but an interesting temporary railway bridge was built across by the Egyptian State Railways during the last war in order to accommodate the additional traffic from the Egyptian side of the canal after May 1, 1918, consisting of large quantities of supplies grown in Upper Egypt and the Sudan for the troops in Palestine. The bridge consisted of two fixed shore spans, one short swing span on a central pivot next to the shore span on the eastern side, and one large swing span in the middle with a 42-metre (138-ft.) opening. To ensure minimum hindrance to the traffic on the canal, the bridge was made capable of being opened in approximately 10 min. and the Suez Canal Company insisted that no fixed times could be made for opening or closing the bridge but that it should be opened whenever required for the passage of ships. Extensive remodelling of the Cairo to Port Said railway line in the neighbourhood of the bridge was necessary to avoid a right-angle crossing. This bridge was demolished after the last war. (*See illustration on page* 554.)

Recently there have been various enemy air raids on the canal zone; it was raided, for example, for two hours on Wednesday night, May 7. Official sources reported that some damage had been done to property belonging to the Egyptian State Railways.

Iraq

Recent events in Iraq have resulted in the suspension of quite a number of international services affecting Turkey. It was officially announced in London on April 19 that in accordance with the terms of the Anglo-Iraqi Treaty of Alliance, strong Imperial Forces had arrived in Basra to open up lines of communication through Iraq. The new Iraqi administration of Raschid Ali (which had seized power on April 1) at first welcomed the Imperial troops, but subsequently took exception to the strengthening of these Forces. On the early morning of May 2 hostilities broke out and the Imperial Forces, attacked by the Iraqis, have since occupied a number of strategic points including Basra and Rutbah. The conflict between Great Britain and Iraq has proved of concern in Turkey as it has resulted in the loss, at any rate for the time being, of the railway link between Basra and Turkey which since the war spread to the eastern Mediterranean has been the most important route for Turkish trade with the outside world. The frontier between Iraq and Syria was closed on May 7. It is understood that the frontier between Syria and Turkey is still open but that travellers from Syria to Iraq are not allowed to cross Turkish territory.

U.S.A. Army to Buy Railways for Training

The U.S.A. Army is to buy for $100,000 the 59-mile line in Louisiana of the Red River & Gulf Railroad for the purpose of training a railway operating battalion. It is also proposed that $500,000 be spent on rehabilitation. In connection with the purchase Major L. T. Ross, Chief of the Railway Section, Corps of Engineers, explained the Army planned to extend the line so that it will eventually serve Camps Claiborne, Beauregard, Livingston, and Polk; the present length " is not quite adequate for the battalion," which consists of 800 men and 18 officers and is designed to operate " from 75 to 100 miles of railroad under dense traffic conditions." The U.S.A. Army had no railway for training during the world war, but Major Ross pointed out that railway regiments were then formed " from the commercial railroads," adding that " at that time the average age of railroad employees was such that we could get men of an age suitable for military work." In 1938, he went on, " the average age was about 46 years, including the young labourers on maintenance-of-way work." Major Ross expressed the view that $100,000 (or about $1,700 a mile) was a reasonable price for the line; the Rock Island Railroad, he said, " offered us a poorer railroad for about $10,000 a mile." The majority of officers in the battalion will be reserve officers who are railwaymen. The major item in the $500,000 to be spent on rehabilitation will be the provision of heavier rails, and it is also intended to replace some sleepers and to strengthen bridges.

Defence Activities of the U.S.A. Pullman Group

Contracts for about $49,000,000 worth of armament work, involving armoured tanks, howitzer mounts, shells and shell forgings, and fabricated aluminium aircraft parts, have been entered into by the Pullman-Standard Car Manufacturing Company (the manufacturing subsidiary of Pullman Inc.) with the United States and British Governments, according to the recently-issued annual report for the year 1940. It is stated that some of the principal orders will not reach quantity production for several months on account of the delay on the part of the buying Government in arranging for special materials, with the result that part of this armament production is scheduled for delivery in 1942. This report was prepared in April, however, and there has been a considerable acceleration in American production during the past few weeks, which will probably result in the advancing of delivery dates. These Pullman contracts covering the manufacture of armaments afford protection against loss in the event of the cancellation of the orders and most of the contracts are on a cost-plus-fixed-fee basis. The Pullman-Standard Car Manufacturing Company had a total of orders for armaments and railway equipment of approximately $93,000,000, about 80 per cent. of which is scheduled for 1941 delivery. It is pointed out that the earning outlook is subject to labour, tax, and material-delivery uncertainties, the cumulative effect of which cannot be predicted.

The Pullman-Standard Car Manufacturing Company has leased its Baltimore goods wagon manufacturing facilities to the United States Maritime Commission for a period of from two to five years, to be used by a sub-lessee shipbuilding corporation, in conjunction with other properties, for the construction of cargo ships. This leasing arrangement does not involve any active participation by the Pullman group in the shipbuilding industry.

XUM

RAILWAY AND OTHER MEETINGS

Canadian Pacific Railway Company

The address prepared by Sir Edward Beatty, G.B.E., K.C., LL.D., Chairman & President, Canadian Pacific Railway, for the annual meeting of the shareholders, held in Windsor station, Montreal, on May 7, was read by Mr. D. C. Coleman, Vice-President of the company, who presided owing to Sir Edward Beatty's absence. The proceedings constituted the sixtieth annual general meeting of the shareholders.

The Chairman said that this national undertaking, designed to fulfil the terms under which British Columbia joined confederation, had from its inception played a vital part in the growth of the Dominion and in the welfare of the British Empire. The enterprise depended on capital supplied from private sources, and the return to the shareholders had been disappointing during the last decade, but the directors had sought to maintain the great national character of the undertaking. At present, all the resources of the company were devoted to the achievement of victory, in which task the officers and employees had joined with wholehearted vigour.

Results of 1940

It was necessary to go back fully ten years to match the transportation requirements of the year 1940. Freight earnings were the best since 1929, while passenger earnings surpassed those of any year since 1931. In point of volume the total traffic handled in the year 1940 was greater than that of 1930. The total car mileage in transportation service was 1,037,000,000 in the year just closed, as compared with 982,000,000 ten years ago. Measured by ton mileage, the freight traffic movement for the year 1940 over the company's railway was equal to the movement during the first year and a half of the last great war. The year's operations resulted in net income of $20,145,056 after payment of all rental and interest charges. This was the most favourable showing since 1930 in which year, however, with slightly less traffic, net income amounted to $38,381,717. These figures constituted a clear indication of the changed conditions confronting the company. At no time in the past had the quality of service offered been higher and the net income for an equal volume of business so low. The freight revenue per ton mile of 0.84 cents was the lowest since 1918, and the passenger revenue per passenger mile of 1.97 cents was the lowest since 1916. Had the earnings per freight and passenger unit for 1940 been the same as for 1926, additional revenue to an amount of approximately $35,000,000 would have been produced.

During the year retirement without refunding of $29,929,680 of capital obligations was effected. In view of the state of the financial markets it was undesirable to attempt to make any new issue of securities to meet maturing obligations or to finance capital expenditures. The latter were kept at the lowest possible level consistent with the protection of the widespread activities of the company, but it was obvious that some capital expenditures must be made every year if the property was to be safeguarded. Moreover, bonds, notes, and other obligations of the company to the amount of $114,000,000 would mature before the end of 1946. It was therefore prudent to continue to retain a substantial part of all cash income as a safeguard against possible eventualities. The full preference dividend in respect of the year 1940 was paid, but the directors considered that they would not be warranted in declaring any dividend on the ordinary stock. The ordinary shareholders had now been without any return since 1931.

Results of First Quarter of 1941

For the first quarter of the present year gross earnings increased $9,775,000 or 27 per cent. The rate of increase was higher on Eastern than on Western lines. The increase in working expenses (including taxes) amounted to $6,557,000 or 22 per cent. and was in keeping with the increased volume of traffic and higher level of earnings. Net earnings were $8,520,000, an increase of $3,218,000. Freight earnings reflect the increasing productivity of wartime industries, and the large volume of export to Great Britain, and of traffic interchanged with United States railways. Lumber has moved in substantially greater quantities, mainly on account of diversion from the Panama Canal route to the overland route of shipments from British Columbia for overseas destinations. Livestock, coal & coke, pulpwood, and miscellaneous commodities also showed notable incrases. The movement of grain and grain products, however, remained at about the level of last year. Passenger earnings continued to show substantial increases. On account of the foreign exchange situation many winter tourists, who normally travelled to the Southern and Western States, had this year chosen Vancouver and Victoria for their vacations, with the result that travel to British Columbia was the best in years. The movement of members of the Armed Forces, and the improvement in domestic travel continued at an accelerated rate.

Shipping Losses

The loss by enemy action of four of the company's steamships last year had removed substantial tonnage from the fleet and diminished its net earning power. The *Empress of Britain* particularly would be missed. The Beaver boats were also outstanding in their class, and it was with regret that he announced that two more of these vessels had been sunk since the close of the year.

Board of Conciliation

In December, 1940, the Governor General in Council approved certain principles of wartime wage policy for the guidance of boards of conciliation set up under the Industrial Disputes Investigation Act. In so far as they might be applicable to the company's operations, the effect of the Order in Council was to provide that wage levels established in the years 1926-29 were to be regarded as generally fair and reasonable, and to insure that the basic standard of living be not impaired. A wartime cost of living bonus may be paid in certain prescribed circumstances. The various classes of employees of the Canadian railway companies whose wage levels were so established, had invoked the provisions of this Order in Council in support of their application for a cost of living bonus. The position of the railway companies was that the employees' basic standard of living had not been impaired, and that there was no warrant under existing conditions for the payment of a cost of living bonus.

Long Term Wheat Situation

The wheat crop of the prairie provinces amounted to 525,000,000 bushels in 1940, the second largest in history. The restrictions on the movement of wheat owing to the closing of all important markets for Canadian grain, except the United Kingdom, imposed a great strain on the country's storage facilities. Terminal elevators were soon filled to capacity, and much of the crop had to be stored in country elevators or on farms. This would probably have been the case to some extent even if there had been no disturbances due to the war. The carry over of wheat at the end of this crop year was estimated to be in the neighbourhood of 550,000,000 bushels, a figure far exceeding that of any previous year. Faced with this situation, the Government had been forced to put into effect drastic measures to restrict the production of wheat. The present policy of paying a fixed price to growers for deliveries of wheat to the Wheat Board was to be continued, and a bonus paid for land placed under summer fallow, or converted to other purposes, such as the growing of coarse grains, grass, or clover. In this way the farmer would receive a net cash return approximately equal to what he would have had under normal conditions of production and distribution.

As long as the war continued to follow its present course, it was unlikely that normal quantities of wheat would be

exported, and a temporary reduction in the company's earnings from grain and grain products was to be expected. Fortunately wheat, particularly the hard Canadian variety, could be stored for long periods without serious deterioration. After the cessation of hostilities Canada's large stocks should prove highly valuable to those countries in which importation or cultivation had been curtailed during the war. Moreover, there was good reason to believe that the economic factors which established Canadian wheat as one of Europe's premier staple foods, would again come into play, even though this might be a slow process at first. Accordingly, the long term prospect for the company's earnings from agricultural products remained favourable.

St. Lawrence Waterway

On March 19, 1941, the Governments of the United States and Canada reached an agreement subject to ratification by Congress and Parliament, for the construction of hydro-electric plants on the international rapids of the St. Lawrence, and enlarging the canals between Lake Ontario and Montreal, together with certain improvements to the Welland Canal and other portions of the Great Lakes St. Lawrence system of waterways. The history of this project extended over many years, and the present step was one of many in a long series of negotiations between the two nations. New reasons for rushing the project had been advanced, namely the need of wartime industries for additional electric power, and the possibility of constructing deep draft vessels in shipyards on the Great Lakes. Judgment of the validity, urgency, and practicability of these reasons could best be left to those who were qualified to deal with the various phases involved. Long experience in transport lead the C.P.R. management to believe that no important advantages in connection with the movement of traffic could result from this great project. The existing waterway had proved to be adequate for the business now offering, and with minor improvements, could be made adequate for any that could be foreseen.

General Situation

The economic life of the nation had been stimulated by the great expenditures of the Government for war purposes to such a degree that unemployment had practically vanished, and the volume of railway transport had reached the highest level in more than a decade. The latter was reflected in the improved earnings of the company, and of the Government railway. The incidence of wartime economics must soon be felt in full measure by the Canadian public. It had been estimated that in the current fiscal year, Governmental expenditures would be equivalent to more than one half of the total national income. The war demanded the diversion of productive efforts, and the curtailment of the output of non-military goods and services, on a scale never before attempted in Canada. It would be the continued policy of the company so to conduct its operations as to meet the needs of the nation to the greatest degree possible.

The Institution of Locomotive Engineers

Mr. O. V. S. Bulleid at annual luncheon

For reasons arising from the war a luncheon held at the Savoy Hotel on May 9 took the place of the usual annual dinner of the Institution of Locomotive Engineers. Mr. O. V. S. Bulleid, Chief Mechanical Engineer of the Southern Railway, and President of the Institution, was in the chair. After the luncheon the Southern Railway Company's new "Merchant Navy" class locomotive, No. 21C1, *Channel Packet* was viewed at Waterloo station by a number of the members of the institution.

Mr. Bulleid said that despite the difficulties of the times no fewer than 172 persons had accepted invitations to be present at the luncheon, and 168 had in fact attended. The majority of them were members, and he thought, therefore, that the council and the dinner committee were justified in arranging the function. He was very pleased to see present the Senior Vice-President of the institution, Mr. R. E. L. Maunsell, who had been President in 1916 and who was just recovering from a serious illness. The institution had suffered some severe losses during the year, one of whom was Lord Stamp. All members of the institution would recall the interest he took in that body and the happy and genial way in which he contributed to it. The loss of Sir Nigel Gresley had been a calamity, both from a professional point of view and from that of a friend and guide. Many of the members had had occasion to be grateful to him.

It had been decided that the institution should hold meetings in the evenings during the summer, and the Secretary had asked him to appeal to members for short papers which might be the subject of discussion. The

Mr. R. R. Stokes, M.P., Chairman of Ransomes & Rapier Limited, on the footplate of the "Channel Packet," with Mr. O. V. S. Bulleid standing alongside

institution had lent £900 free of interest to the Treasury to show its desire to assist in the war effort. He hoped everyone who could would send books to the Prisoners of War Department of the Red Cross. Some wonderful work was being done by the overseas branches of the institution which were very alive and energetic.

By reason of the good offices of Mr. E. J. Missenden, General Manager, Southern Railway, the first of the Southern Railway Pacific locomotives was to be on view at Waterloo after the luncheon. He would warn members that the streamlined locomotive was not the most interesting engine to look at, but in the cab there were certain arrangements which he thought were worth seeing.

Mr. J. Clayton proposed a vote of thanks to the President, and said that the luncheon had been no less successful than many dinners which had been attended by representatives of both railway management and engineers.

Questions in Parliament

Road Accidents Insurance

Mr. T. E. Naylor (Southwark South-east—Lab.), on April 30, asked the Minister of Transport whether, in order to add to the sense of personal responsibility on the part of drivers, he would consider limiting, by legislation or order, insurance against compensation claims to 80 or 75 per cent. of the full amount.

Lt.-Colonel J. T. C. Moore-Brabazon (Minister of Transport) in a written reply stated: I think the present system, in which insurers impose an "excess" or offer a "no claim bonus" according to claims experience, is preferable to a position under which, in many instances, an injured third party would be able to recover only 75 per cent. of the compensation awarded him.

Government Control

Mr. W. Dobbie (Rotherham—Lab.), on May 7, asked the Parliamentary Secretary to the Ministry of Transport if, in view of the many difficulties confronting the question of transport at the moment in the country and with the multiplicity of committees in existence of an advisory character in relation to the industry dealing with this problem, he had considered the advisability of taking over complete control of all transport in the country; and had a decision yet been arrived at.

Col. Llewellin (Parliamentary Secretary to the Ministry of Transport). We already have a very wide measure of control over transport, and we shall not hesitate to extend it if that be necessary to obtain the maximum advantage.

XUM

Notes and News

Eastern Bengal Railway Annuities.—For the purpose of providing a sinking fund in respect of Eastern Bengal Railway Annuities, Class "B," the total sum invested on March 31, 1941, amounted to £934,565.

East Indian Railway Annuities.—Notice is given that on March 31, 1941, in accordance with the provisions of the East Indian Railway Company Purchase Act, 1879, a total sum of £8,155,595 was invested for the purpose of providing a sinking fund in respect of Annuities Class "B." Total sinking fund investments were £1,829,957 in respect of Annuities Class "C," and £3,489,250 in respect of Annuities Class "D."

Road Accidents in March.—The Ministry of Transport return of the number of persons reported to have died in Great Britain during the month of March last as a result of road accidents showed a total of 834, compared with 496 for the corresponding period of 1940; of these 358 (against 253) were adult pedestrians. Of the total casualties 369 (against 235) occurred during hours of darkness and 465 (against 261) at other times.

Southern Railway Derailment.—At the inquest on George Burgess, who was killed when the engine on which he was fireman was derailed near St. John's station on April 20, it was disclosed that a section of the track was found to have subsided by two inches. The subsidence, which had taken place alongside drainage work, was apparently due to heavy rain. A verdict of accidental death was recorded. As reported in our issue of May 2, the train concerned was the 6.15 p.m. London—Dover—Ramsgate train.

Through Traffic Conference in Africa.—A message from Cape Town says that a conference of Ministerial and senior representatives of railways and harbours of the Union of South Africa, Rhodesia, and the Belgian Congo, will be held in Bulawayo in June, to discuss means of encouraging further through railway traffic over thousands of miles of railway in Southern Africa. The Union Minister for Railways says that the matters to be discussed aim at closer economic collaboration between the Union and Northern States, which is being fostered by the South African Government to open up new trade markets. The conference is one result of the recent visit to the Union of the Belgian Minister for Colonies. The South African Minister of Commerce told the Union Parliament recently that the Union's exports to the Congo had increased by 61 per cent.

Tube Train Extension to Mill Hill East.—On Sunday next, May 18, Northern Line tube trains will be extended to Mill Hill East station, L.N.E.R., and that station will replace Finchley Central as the exchange point between bus and train for passengers to and from the Edgware direction.

Weaver Navigation Charges.—The trustees of the Weaver Navigation, in order to meet higher operation costs arising from the introduction of the registered dock labour system in the Merseyside area, have put into effect a new schedule of rates as from May 1, for all services at Weston Point docks. Particulars will be available on request from the Dock Superintendent, Weston Point Docks, near Runcorn.

Iraqi-Syrian Co-ordination.—Mr. Bourn and Sayid Bahauddin Nuri, the Traffic Manager and Assistant Traffic Manager of the Iraqi State Railways, respectively, are understood to be visiting Syria to discuss certain outstanding questions with the Syrian railway authorities concerning the organisation of traffic between the two countries and freight charges, more particularly those affecting livestock.

Palestine Railway Traffic.—Freight traffic carried by the Palestine Government Railways during the first nine months of 1940 was 734,000 tons, against 716,000 tons in the corresponding period of 1939. Passengers increased from 519,000 for the first nine months of 1939, to 931,000 for the same period of 1940, mainly because of the resumption of passenger services that had been temporarily out of operation. The deficit shown by the railway accounts for the 1939-40 fiscal year was £P.187,000, compared with £P.282,000 for the previous year. The Government-owned railways were operated in 1940 with no interference such as that caused in previous years by local political troubles. The line between Lydda and Jerusalem, which was reopened for freight service in 1939 after being closed in 1938, was used again for passenger service beginning in April, 1940. Early in 1940 a daily service of through trains between Egypt and Haifa was resumed, instead of the reduced schedule of three trains a week.

Irish Traffic Returns

IRELAND		Totals for 17th Week			Totals to Date		
		1941	1940	Inc. or Dec.	1941	1940	Inc. or Dec.
		£	£	£	£	£	£
Belfast & C.D. (80 miles)	pass.			No returns to hand			
	goods						
	total						
Great Northern (543 miles)	pass.			No returns to hand			
	goods						
	total						
Great Southern (2,049 miles)	pass.	39,727	34,730	+ 4,997	601,562	503,371	+ 98,191
	goods	53,763	51,581	+ 2,182	860,008	761,888	+ 98,120
	total	93,490	86,311	+ 7,179	1,461,570	1,265,259	+ 196,311
L.M.S.R. (N.C.C.) (247 miles)	pass.			No returns to hand			
	goods						
	total						

British and Irish Railway Stocks and Shares

Stocks	Highest 1940	Lowest 1940	Prices May 13, 1941	Prices Rise/Fall
G.W.R.				
Cons. Ord.	52	22¼	34	—
5% Con. Pref.	103¼	58	98½	+2
5% Red. Pref. (1950)	105½	88	103	—
4% Deb.	107½	90½	110½	—
4½% Deb.	108½	96½	113	—
4½% Deb.	114¾	96	116½	—
5% Deb.	124	106	130	—
2½% Deb.	66½	57	66	—
5% Rt. Charge	117¾	97	127½	—
5% Cons. Guar.	117	90½	125½	—
L.M.S.R.				
Ord.	24⅞	9	12⅜	—
4% Pref. (1923)	60¼	21⅜	37½	—
4% Pref.	70¾	35	56½	—
5% Red. Pref. (1955)	94½	60	84½	—
4% Deb.	101¾	81	102½	—
5% Red. Deb. (1952)	109½	102	108	—
4% Guar.	93¾	65	95½	+1
L.N.E.R.				
5% Pref. Ord.	8⅜	1¼	2⅜	—
Def. Ord.	4⅜	1¼	1⅜	—
4% First Pref.	60	20	36½	—
4% Second Pref.	22⅞	6½	13	—
5% Red. Pref. (1955)	80	34½	62½	—
4% First Guar.	86½	56	84½	+1
4% Second Guar.	77½	37	69½	+2
3% Deb.	73½	54½	76	—
4% Deb.	97⅜	74	100¼	+1
5% Red. Deb. (1947)	107	96¾	104	—
4½% Sinking Fund Red. Deb.	104	98	102½	—
SOUTHERN				
Pref. Ord.	79	34	50½	—
Def. Ord.	22½	7	10	—
5% Pref.	104¼	58¾	93½	+2
5% Red. Pref. (1964)	105	85	100¼	—
5% Guar. Pref.	116½	90	126	—
5% Red. Guar. Pref. (1957)	114⅞	94	113½	—
4% Deb.	106¾	84½	109½	+1
5% Deb.	122½	100	128½	—
4% Red. Deb. (1962–67)	106	96½	106	—
4% Red. Deb. (1970–80)	106⅜	93	106	—
FORTH BRIDGE				
4% Deb.	95½	87	93½	—
4% Guar.	93½	81¼	91½	—
L.P.T.B.				
4½% "A"	116	103	119½	—
5% "A"	121½	107	126½	—
4½% "T.F.A."	105½	101	102½	—
5% "B"	116	102	112½	—
"C"	65½	24	31	—
MERSEY				
Ord.	26	18½	20½	—
4% Perp. Deb.	92½	86¾	92½	—
3% Perp. Deb.	68	63	67½	—
3% Perp. Pref.	57	50¼	53½	—
IRELAND				
BELFAST & C.D.				
Ord.	4	3	4	—
G. NORTHERN				
Ord.	4¼	1½	4½	—
G. SOUTHERN				
Ord.	12½	4	7	—
Pref.	15½	6	7	—
Guar.	36	15	19	—
Deb.	55½	40	47	+1½

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OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is 9.30 a.m. on Wednesday. All advertisements should be addressed to :—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

Staff & Labour Matters

Railway Wages

The Railway Staff National Tribunal on May 6 began hearing the claims of the railway trade unions for an increase in the special war advance. The public hearing finished at midday on May 7. We hope to include next week a report of the statement made on behalf of the three unions in presenting the claims, and a summary of the reply of the railway companies and the rejoinder of the unions.

Summer Holidays

An announcement issued by the Ministry of Labour on April 30 states that the Government takes the view that for purposes of efficiency in war production and in the other essential business of the country, the customary summer holiday so far as it does not exceed one week should in general be taken this year. This does not mean that the holiday should necessarily be taken at the usual times or in the usual way. While a holiday should provide a physical and mental change from one's ordinary work, care should be taken to reduce travel to the minimum. Special facilities for travel cannot be made available and transport undertakings must continue to give first consideration to the movement of essential traffic.

Arrangements for holidays to be taken in rotation by individuals must be made on a much wider scale than has been usual under peace conditions, so as to avoid dislocation of the rhythm of production and of the ordinary routine of the country. In the case of some establishments it may be better from the point of view of efficiency to close down for the holiday period, if advantage can be taken of this to overhaul the plant. Arrangements should be made to enable goods to be received even though the establishments are closed. The Government considers it undesirable that there should be a general holiday period in a particular town or area, even though this may in a number of cases prevent members of a family from taking their holidays at the same time.

Wherever possible, the week's holiday should be in one spell, but in some cases it may be necessary to divide it into two spells, and it is contemplated that, as last year, the law will be modified to permit of such division in various cases in which it would have been illegal. Where the week is so divided, one spell should, if practicable, immediately precede or follow the worker's weekly rest day. Holidays should not be concentrated in the early part of August but should be spread so far as possible over the period May to October, by an extensive use of rota systems and of staggering holidays as between different establishments.

Subject to unforeseen circumstances, it is contemplated that the Whitsun Monday Holiday in England and Wales shall not be cancelled nor, in Scotland, the Victoria Day Holiday or corresponding one day holiday, though it will be necessary that people engaged on specially urgent production or services should work on those days. Work should not be suspended on Whitsun Tuesday. No announcement can at present be made about August Bank Holiday. Payment for holidays or payment for work done on days which would ordinarily be holidays should be governed by existing law or any provisions in agreement relating to this matter.

Railway and Other Reports

San Paulo (Brazilian) Railway Co. Ltd.—The directors propose an ordinary dividend of 2 per cent., tax free, for the year 1940, comparing with 2½ per cent., tax free, for 1930.

Bengal-Nagpur Railway Co. Ltd.—An interim dividend is being paid of 5s. per cent. from surplus profits, making, with the guaranteed interest, 2 per cent. (the same).

South Indian Railway Co. Ltd.—Interim dividend of 1¾ per cent. from guaranteed interest. This compares with 2¼ per cent. (1¾ per cent. guaranteed interest and ½ per cent. from surplus profits).

Cordoba Central Trust Limited.—An interim payment is to be made on June 16 at the rate of 1½ per cent. per annum on the "B" debenture stock in respect of the financial year to June 30, 1941.

Potteries Motor Traction Co. Ltd.—This company, a subsidiary of the British Electric Traction Co. Ltd., earned a profit of £85,237 in 1940, against £85,044 for 1939. A sum of £30,000 is again transferred to reserve, and the dividend for the year is maintained at 10 per cent., leaving £25,870 to be carried forward, against £24,758 brought in.

British Electric Traction Co. Ltd.—After allotting £70,000 (against £50,000) for E.P.T. and providing for general expenses, including income tax, profits for the year to March 31, 1941, amounted to £531,824, against £548,748. A final dividend of 30 per cent. is recommended, making with the 15 per cent. interim, 45 per cent. for the year on the deferred ordinary stock (the same), leaving a balance of £12,864 (£29,890) to be added to undivided profits account, and raising the carry-forward to £1,975,378.

Hants & Dorset Motor Services Limited.—The directors of this subsidiary of the Southern Railway Company and of Tilling & British Automobile Traction Limited recommend a final dividend of 5 per cent., making 9 per cent. tax free for the year to March 31 last, compared with 9¼ per cent. tax free for the previous year. Net profit was £66,268, against £71,495.

Wilts & Dorset Motor Services Limited.—Controlled jointly by the Southern Railway Company and Tilling & British Automobile Traction Limited, this company earned in 1940 a profit of £13,060, against £12,401 for 1939. The final dividend is 5 per cent., the same, again making 10 per cent., free of tax, for the year, leaving £13,644 to be carried forward, against £12,583 brought in.

Associated Equipment Co. Ltd.—Interim dividend at the rate of 6d. a £1 unit of stock, free of tax (same).

John I. Thornycroft & Co. Ltd.—Interim dividend of 5 per cent. on the ordinary shares. No interim was paid at this time last year.

Beyer, Peacock & Co. Ltd.—Gross profit for the year 1940 was £79,069, against £74,195, and net profit, subject to provision for E.P.T., was £53,377, compared with £52,319, after allotting £12,750 (against £11,000) to reserve for depreciation. Arrears of three half-years' preference dividends to December 31, 1932, have been paid during the past twelve months.

Contracts and Tenders

The Bengal-Nagpur Railway has placed an order for ten crank arms with Beyer, Peacock & Co., Ltd.

The Manchester depot of Ferodo Limited has secured new premises at 33/41, Nelson Street, Chorlton-on-Medlock, Manchester 13. Telephone No. Ardwick 3271.

Railway Stock Market

Although there has been very little fresh business passing in the stock and share markets, the undertone in security values has been steady. In fact, the absence of selling pressure assisted sentiment, as this provides a further indication of general willingness to be prepared to take a long view in regard to the war and kindred developments. Markets were aided by the steadiness of British Funds and by the demand for investment securities of the fixed interest-bearing type. Home railway prior charges have not all held best prices recorded recently, but were mostly higher on balance, and the majority of junior stocks were little changed. It is being pointed out that numerous anomalies would appear to exist in regard to the yields obtainable on railway securities, but investors are showing little disposition to exchange into the higher yielding stocks, even where for all practical purposes, this would not involve any decrease in the investment merits of their holding. There seems little doubt that home railway prior charges are undervalued in relation to many other leading investments, and it is assumed in many quarters that, when the position of the railways is clarified in regard to the plans for co-ordinating all forms of transport vital to the war effort, a general advance in the junior, as well as prior charge stocks may be witnessed. Much may, of course, depend on the surrounding conditions then obtaining in the stock and share markets; but meanwhile many of the yields must be considered attractive and as out of line with those on equivalent stocks in other sections of the Stock Exchange. L.N.E.R. second guaranteed, for instance, still yields nearly 5¾ per cent., while 5¼ per cent. is returned by Southern 5 per cent. preference. Yields of as much as 10½ per cent. are obtainable on L.N.E.R. first preference and L.M.S.R. 1923 preference, or more than that shown by Southern preferred ordinary.

Demand for prior charges has been steady and in some instances stock appeared to be in short supply in the market. On balance Southern 4 per cent. debentures further improved from 109 to 109½, but this is still 1½ points below the equivalent stock of the Great Western. Southern 5 per cent. preference improved from 92 to 94; and the preferred ordinary was fractionally better at 50¼; the deferred stock was unchanged at 10. At 111 Great Western 4 per cent. debentures more than held last week's rise; while the 5 per cent. preference rallied from 96½ to 98½; but the ordinary stock at 33¾ was a point below the level ruling a week ago. Among L.M.S.R. issues, the guaranteed moved up from 95½ to 96; the senior preference from 56½ to 57; and the 1923 preference from 37½ to 38. On the other hand, L.M.S.R. ordinary was slightly lower at 12⅝. A further improvement from 67½ to 70 was shown in L.N.E.R. second guaranteed; the first guaranteed was 85, compared with 83½ a week ago. L.N.E.R. 4 per cent. debentures were higher and transferred around par, while the 3 per cent. debentures were 76. This railway's first preference stock was a point better at 37½, but the second preference moved back slightly to 12¾. London Transport "A" and "B" stocks tended to higher prices; the "C" changed hands at virtually the same level as a week ago.

Owing to surrounding conditions in the stock and share markets, Argentine and other foreign railway securities were even less active this week, and in many instances it is doubtful if quotations were tested. B.A. Great Southern 4 per cent. debentures were 40 ex the interest payment. San Paulo remained under the influence of the lower dividend and were quoted at 27xd. In other directions the main feature of interest was a rise to 8⅞ in Canadian Pacific on the further traffic gain; the preference stock was also higher on balance.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1940-41	Week Ending	Traffic for Week: Total this year	Traffic for Week: Inc. or Dec. compared with 1940	No. of Weeks	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1940	Prices: Lowest 1940	Prices: May 13, 1941	Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	4.5.41	17,290	+ 7,480	19	314,400	342,000	— 27,600	Ord. Stk.	11½	3½	4½	Nil
	Argentine North Eastern ...	753	3.5.41	ps. 79,000*	— ps. 82,500	44	ps. 6,340,800	ps. 6,666,200	— ps.325,400	,,	3¾	1	2	Nil
	Bolivar	174	Apr. 1941	3,912	— 738	18	14,932	16,240	— 1,308	6 p.c. Deb.	6½	5	6½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	8	5	5	Nil
	Buenos Ayres & Pacific ...	2,801	3.5.41	ps.1,585,000	+ps.160,000	44	ps.62,780,000	ps. 61,709,000	+ps.1,071,000	Ord. Stk.	4½	1	2	Nil
	Buenos Aires Central ...	190	18.1.41	$70,400	— $20,200	29	$2,477,400	$2,994,900	— $517,500	—	—	—	—	—
	Buenos Ayres Great Southern	5,082	3.5.41	ps.2,253,000	+ ps.66,000	44	ps.97,409,000	ps.104,859,000	— ps.7,450,000	Ord. Stk.	10⅜	3	4½	Nil
	Buenos Ayres Western ...	1,930	3.5.41	ps. 985,000	+ps.302,000	44	ps.34,081,000	ps. 35,038,000	— ps. 957,000	,,	8⅜	2	3	Nil
	Central Argentine	3,700	3.5.41	ps.2,061,000	+ps.458,000	44	ps.70,795,350	ps. 77,985,950	— ps.7,190,600	,,	8½	2	2⅜	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4	¼	1	Nil
	Cent. Uruguay of M. Video	972	3.5.41	27,523	+ 1,420	44	1,002,330	945,922	+ 56,408	Ord. Stk.	3¾	¼	1¾	Nil
	Costa Rica	188	Feb. 1941	14,492	— 2,403	35	117,903	136,096	— 18,193	Stk.	23⅛	14	15½	12⅞
	Dorada	70	Mar. 1941	12,500	+ 700	13	36,700	34,500	+ 2,200	1 Mt. Db	99	97½	98	6 1/16
	Entre Rios	808	3.5.41	ps. 167,200*	— ps.59,600	44	ps. 9,318,000	ps.10,477,500	—ps.1,159,500	Ord. Stk.	4	¼	1½	Nil
	Great Western of Brazil ...	1,016	3.5.41	7,700	+ 200	18	186,300	219,100	— 32,800	Ord. Sh.	4/-	1/-	1/6	Nil
	International of Cl. Amer. ...	794	Mar. 1941	$487,887	— $103,925	12	$1,444,383	$1,762,134	— $317,751	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pref.	9d.	9d.	½	Nil
	La Guaira & Caracas... ...	22¾	Apr. 1941	5,915	— 125	18	24,910	28,015	— 3,105	—	6	4	—	—
	Leopoldina	1,918	3.5.41	22,250	+ 4,085	18	424,005	387,105	+ 36,900	Ord. Stk.	2 3/16	¼	⅜	Nil
	Mexican	483	30.4.41	ps. 412,300	—ps. 60,900	17	ps. 5,330,400	ps. 5,391,200	— ps. 60,800	,,	2/11¼	3/8	⅜	Nil
	Midland of Uruguay ...	319	Mar. 1941	13,106	— 209	39	107,795	94,539	+ 13,256	—	—	—	—	—
	Nitrate	386	30.4.41	3,209	— 5,854	18	34,186	65,025	— 30,839	Ord. Sh.	2¼	1¼	2 3/16	5 11/16
	Paraguay Central	274	3.5.41	$3,373,000	+ $2,000	44	$142,471,000	$140,714,000	+ $1,757,000	Pr. Lt. Stk.	41	36	30½	19 11/16
	Peruvian Corporation ...	1,059	Apr. 1941	68,480	— 5,352	43	640,466	680,483	— 34,017	Pref.	4	1	2	Nil
	Salvador	100	22.2.41	c26,787	— c17,551	34	c490,660	c615,137	— c124,477	—	—	—	—	—
	San Paulo	153½	4.5.41	42,125	+ 5,322	18	639,500	620,404	+ 19,096	Ord. Stk.	50	23	27§	9½
	Taltal	160	Apr. 1941	2,310	— 775	43	27,450	26,220	+ 1,230	Ord. Sh.	15/1½	⅜	⅝	Nil
	United of Havana	1,346	3.5.41	37,333	+ 5,946	44	1,055,803	1,085,010	— 29,207	Ord. Stk.	⅜	¼	½	Nil
	Uruguay Northern	73	Mar. 1941	1,166	— 239	39	10,320	9,995	+ 325	—	—	—	—	—
Canada	Canadian National	23,633	30.4.41	1,582,571	+ 458,401	18	17,869,473	14,208,056	+ 3,661,417	—	—	—	—	—
	Canadian Northern ...	—	—	—	—	—	—	—	— 4 p.c.	Perp. Dbs.	86	68	92	4⅜
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gr.	105¾	95 13/16	101¼	3 15/16
	Canadian Pacific	17,153	7.5.41	821,400	+ 193,400	19	13,235,000	10,164,200	+ 3,070,800	Ord. Stk.	9 3/16	4⅛	9	Nil
India†	Assam Bengal...	1,329	30.4.41	45,187	+ 6,529	4	135,060	120,437	+ 14,623	Ord. Stk.	99⅜	71	100	3
	Barsi Light	202	20.3.41	5,302	+ 1,950	51	161,595	123,330	+ 38,265	—	—	—	—	—
	Bengal & North Western ...	2,086	31.3.41	264,150	— 7,291	26	1,554,747	1,468,050	+ 86,697	Ord. Stk.	283	234	300	5 3/16
	Bengal Dooars & Extension	161	Sept. 1940	14,625	+ 508	26	78,405	66,243	+ 12,162	,,	—	—	—	—
	Bengal-Nagpur	3,269	28.2.41	215,100	— 39,983	49	8,144,659	7,427,779	+ 716,880	,,	96	83⅜	100½	4
	Bombay, Baroda & Cl. India	2,986	30.4.41	310,875	+ 12,375	4	976,200	895,350	+ 80,850	,,	108	99	108½	5½
	Madras & Southern Mahratta	2,939	28.2.41	161,100	— 40,513	49	5,624,353	5,347,081	+ 277,272	,,	104	97⅜	104½	7 1/16
	Rohilkund & Kumaon ...	571	31.3.41	70,950	+ 5,404	26	343,151	317,933	+ 25,218	,,	284	238	293	5 1/16
	South Indian	2,500	20.2.41	133,540	+ 20,609	48	4,069,454	3,620,626	+ 448,828	,,	93¾	83	98½	4 1/16
Various	Beira	204	Feb. 1941	71,772	—	22	356,533	—	—	—	—	—	—	—
	Egyptian Delta	610	10.3.41	7,543	+ 1,998	50	231,577	203,467	+ 28,110	Prf. Sh.	7/10½	⅜	½	Nil
	Kenya & Uganda	1,625	—	—	—	—	—	—	—	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	53	44½	46½	7⅜
	Midland of W. Australia ...	277	Jan. 1941	14,629	+ 900	30	105,753	90,657	+ 15,096	Inc. Deb.	88	80	87½	6⅛
	Nigerian	1,900	22.2.41	74,093	+ 16,001	30	2,056,584	1,856,487	+ 200,097	—	—	—	—	—
	Rhodesia	2,442	Feb. 1941	460,055	—	22	2,388,076	—	—	—	—	—	—	—
	South Africa	13,287	29.3.41	684,849	+ 107,642	52	36,257,015	33,681,875	+ 2,575,140	—	—	—	—	—
	Victoria	4,774	Aug. 1940	883,289	+ 190,022	9	1,756,717	1,383,157	+ 373,560	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of 1/16. Argentine traffics are given in pesos
* Traffic affected by floods. † Receipts are calculated @ 1s. 6d. to the rupee